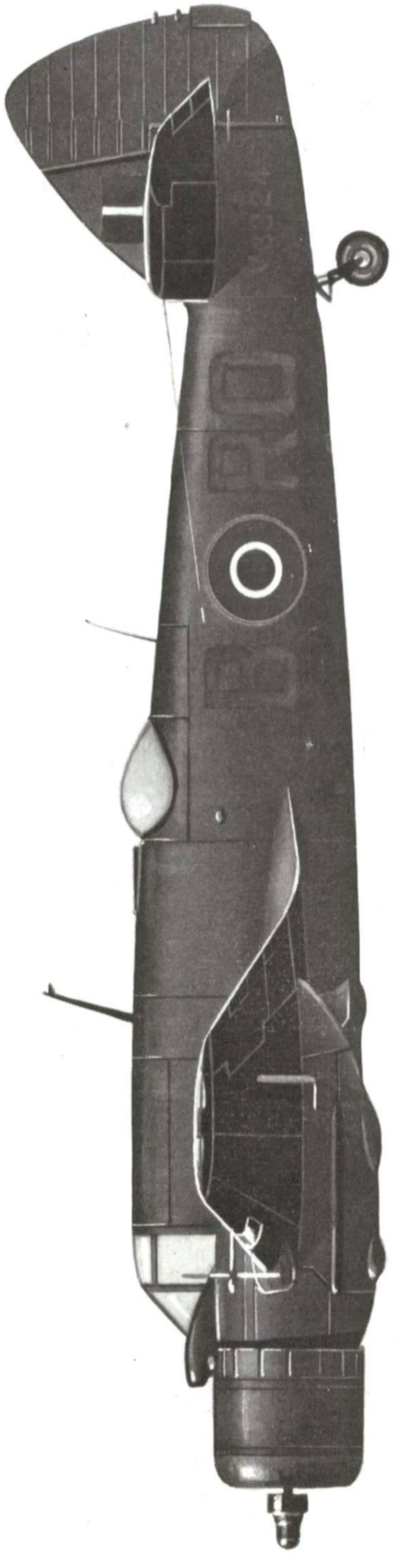
PROFILE PUBLICATIONS

The Bristol Beaufighter I & II



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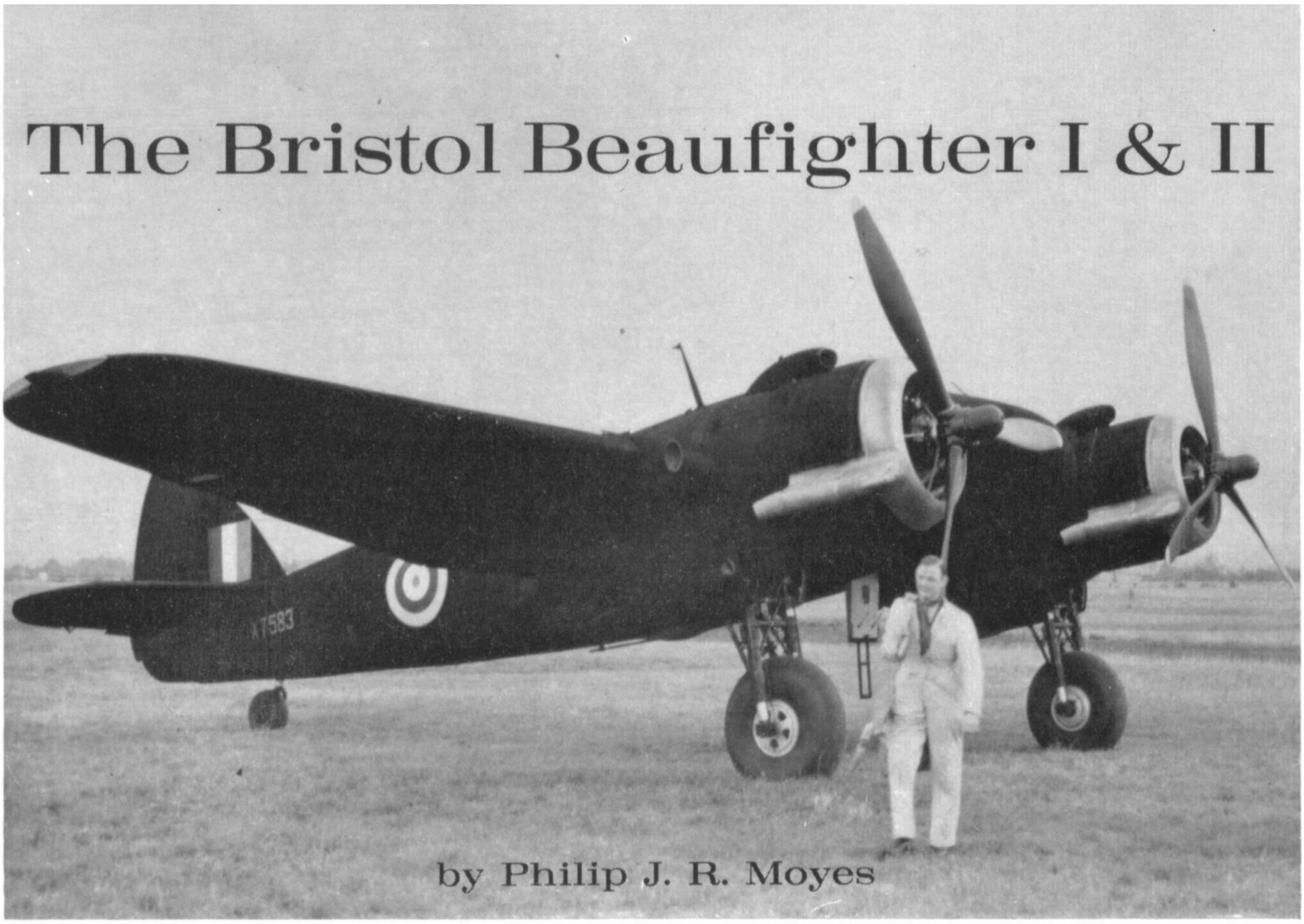
The Bristol Beaufighter I & II

by Philip J. R. Moyes



Beaufighter IF X7583, a product of the "shadow factory" at Old Mixon, near Weston-super-Mare, seen with test pilot Ronnie Ellison in 1941. (Photo: The Aeroplane)

> ***" I pulled the hatch open, dropped down on to the ground, and walked around to the front of the aircraft. She was good, whichever way you looked at it, sturdy and aggressive, although perhaps a bit heavy. But the two gigantic Hercules engines with which she was powered, air cooled and close cowled, with their huge propellers, sweeping through a wide arc, could surely lift anything. From the tip of that forked aerial at the nose to her shapely rudder she was a beauty. I knew that somehow, as gunner, powder monkey, operator, or stowaway, it did not matter which, I just had to fly in her." (The late C. F. (Jimmy) Rawnsley, famous wartime navigator to John Cunningham, in "Night Fighter " first published by Collins, London, 1957).***

Routed by Hurricanes and Spitfires in the Battle of Britain, the *Luftwaffe* turned to night bombing. Defeat again overtook it. A principal agent in this second reverse was the Beaufighter which, armed with four cannon and six machine-guns, and carrying radar "eyes" that could penetrate the darkness, took a toll of the raiders heavier than they could sustain.

Night interception was but the first of the Beau's successes. It later defended bombers on anti-submarine patrol, made day and night intruder raids, harassed retreating enemy columns in North Africa and Italy, became fighter-bomber, rocket fighter ("Rockbeau") and finally torpedo aircraft ("Torbeau")—spearhead of the paralysing attacks on German shipping which marked the closing months of the war in Europe.

The Japanese too knew the Beaufighter. Because of its near-silent, low-level approach they called it "Whispering Death".

The Beaufighter was first conceived during the 1938 Munich Crisis when the Bristol Aeroplane Company recognised the R.A.F.'s obvious and urgent need for a long-range fighter of decisive striking power. Tests on the Beaufort torpedo-bomber proved it to have so great a reserve of structural strength and stiffness that it was immediately seen that the wings, nacelles, undercarriage and tail would be suitable for an aircraft of much greater speed and manoeuvrability; in fact in the fighter class.

Accordingly, the Bristol design team under Mr. L. G. Frise, produced, as a private venture, a cannon-armed fighter derivative which could be assembled on the same jigs so that production could be switched, at short notice, from one to the other. This fighter, of course, required more powerful engines than the 1,000 h.p. Bristol Taurus of the Beaufort and these were already in production in the 1,500 h.p. Bristol Hercules. These bigger engines required larger diameter propellers, and to obtain the necessary ground clearance they were mounted centrally on the wing instead of underslung as were the Beaufort's Taurus engines. And initially they were mounted on the standard Beaufort nacelles and undercarriages.

The use of large propellers also meant that the nose of the new fighter had to be shortened until it was behind and clear of them. The same pick-up fittings as for the Beaufort were used to bolt the new fuselage on the wings, above which the fuselage was narrowed off to the well-known Beaufighter shape. The rear of the fuselage tapered down to make use of the identical stern end of fuselage complete with retractable tail wheel and identical tail plane, fin and rudder of the Beaufort.

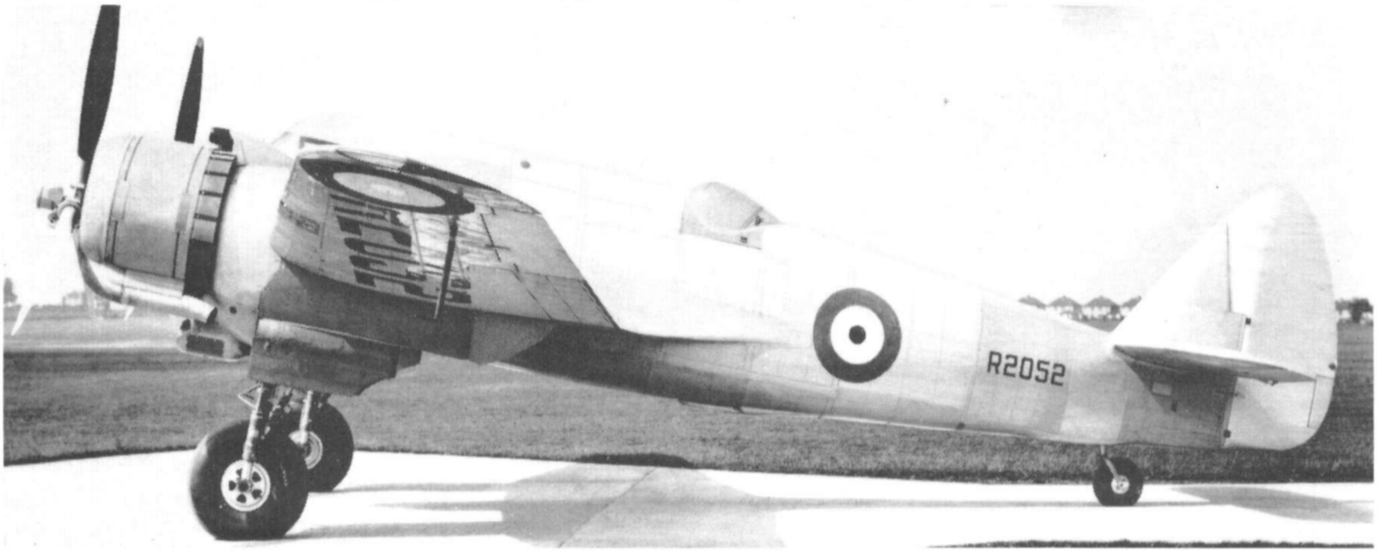
Although it was felt in some quarters that this new fighter was unnecessarily large, the proposition was well received by the Air Staff and Bristol's were authorised to build four prototypes; detail design began on 16th November, 1938. At the same time the company was asked to investigate development of a "slim-fuselage" version. The original project, outlined in October, 1938, was designated Type 156 and in March, 1939 it was named "Beaufighter". Type numbers 157 and 158 were given to a proposed three-seater bomber version with a dorsal turret, and the "slim-fuselage" version (the so-called "sports model") respectively.

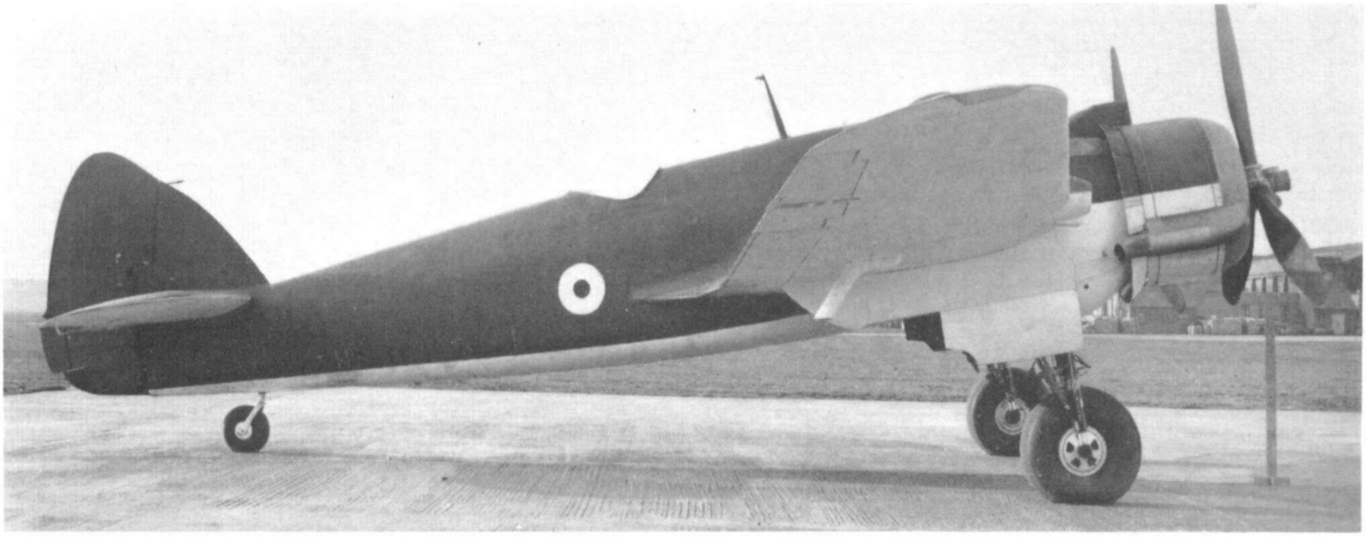
Only six months after the first layout had been drawn, the first Beaufighter prototype (R2052) was completed and on 17th July, 1939, made its maiden flight. To convert Beaufort to Beaufighter prototype required only 2,100 drawings, but more than twice as many more were needed to make it fully operational. Consequently, although a production order was placed on 3rd July for 300 "straight off the drawing board" (as approved to Air Ministry Specification F.17/39) it was a year before deliveries to the R.A.F. could begin. The initial contract included four prototypes and one of its requirements was that the design should accommodate the Rolls-Royce Griffon as an alternative to the Hercules, with maximum interchangeability between these engines as removable power-plant installations. The Hercules fitted to the first production Beaufighter Is was the Hercules Mk. III.

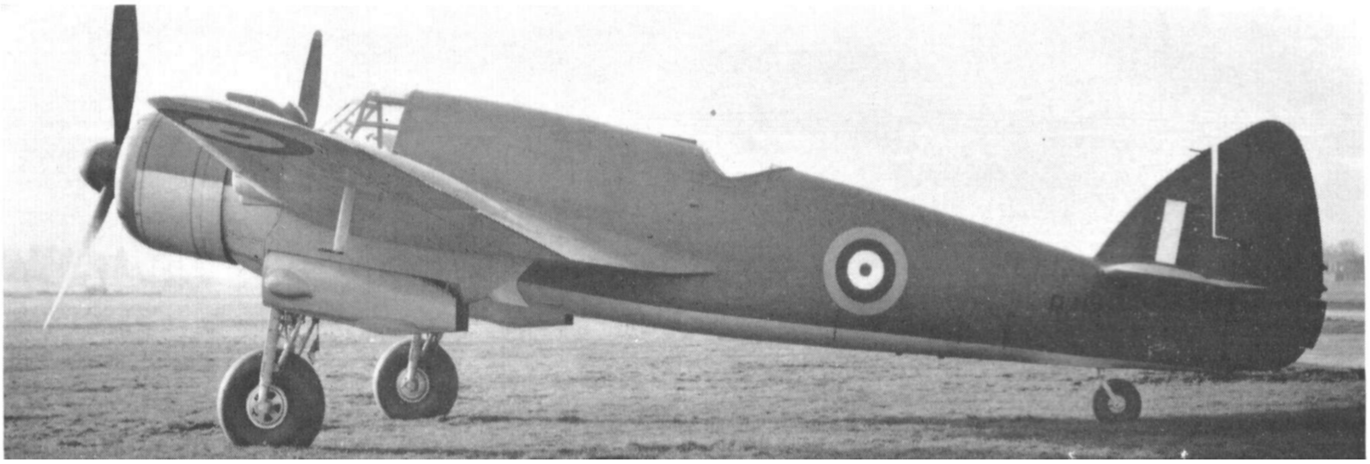
DEVELOPMENT FEATURES

Makers' trials of R2052 at Filton resulted in minor changes being made to stiffen the elevator control circuit and increase the fin area. Also the Beaufort's Vickers main oleo-leg assembly was changed to a

Below (top): *First prototype Beaufighter R2052 with oil-cooler intakes under the engine cowlings, Filton, July, 1939; a/c was then unarmed.* (Centre): *Third prototype R2054 with oil cooler intakes in wings, green and brown camouflage and black and white under-surfaces.* (Bottom): *R2186, an early production Beaufighter IF. Compare undercarriage doors with those of prototypes.*







longer-stroke Lockheed unit, to allow for future weight increases and heavy landings at night; this required the airscrew diameter to be reduced from 13 ft. to 12 ft. 9 in. for adequate ground clearance.

R2052 was handed over to the R.A.F. on 2nd April, 1940, the second prototype, R2053, following within a fortnight. During pre-delivery trials, R2052, with two-speed supercharged Hercules I-SM engines (similar to Hercules III) and in its clean state, reached 335 m.p.h. at 16,800 ft.; but R2053, with Hercules I-M (similar to production Hercules II) was disappointing at altitude. Hercules III engines specified for the production Beaufighters were not likely to give much improvement once extra operational equipment had been installed, and interest centred on alternative engines available for additional aircraft. Roy Fedden, chief designer of Bristol's engine division, proposed an improved Hercules VI—a close-cowled power plant with reverse flow cooling—but this was not far enough advanced for serious consideration and the Rolls-Royce Griffon became the official favourite. At the same time trials of the Hercules II and III continued in an effort to increase power output.

Meanwhile, the demand for Hercules engines for Stirling bombers threatened to curtail Beaufighter delivery rate in the coming year. As the Hercules IV needed considerable development, and because all available Griffons were earmarked for Naval Firefly contracts, the Air Ministry decided to adapt the Beaufighter to take Rolls-Royce Merlins until a new Hercules shadow factory at Accrington could come into full operation. At the same time, the "slim-fuselage" version was to be developed to use either Hercules VI or Griffon. The standard Merlin XX model was designated Beaufighter II; the "slim-fuselage" version became Beaufighter III with Hercules VI, and Beaufighter IV with Griffons. Neither of the "slim-fuselage" versions was proceeded with.

The first five production Beaufighters were delivered to the R.A.F. on 27th July, 1940, and five more had been despatched by 3rd August. Production rapidly gained momentum and the number on order at Filton was increased by a new contract for 918. Early criticism of the aircraft's size had yielded to enthusiasm when it was found to be the only potential night fighter able to carry the bulky early type Airborne Interception radar sets without sacrificing duration or firepower. Thus it was that early production machines began to appear with the familiar "bow and arrow" aerials for the 1½ metre A.I. Mk. IV equipment.

Certain aerodynamic improvements were incorporated in production Beaufighters: nacelle drag was lessened by lengthening the part above the wing whilst also reducing the cross-section below the wing and fitting doors which completely enclosed the tail wheel; the outer tank fuel jettison pipe was deleted and a combined inner and outer tank jettison chute located in the rear of the nacelle, also the oil coolers, installed below the engine on the first prototype were moved back to the leading edge, as on the Beaufort.

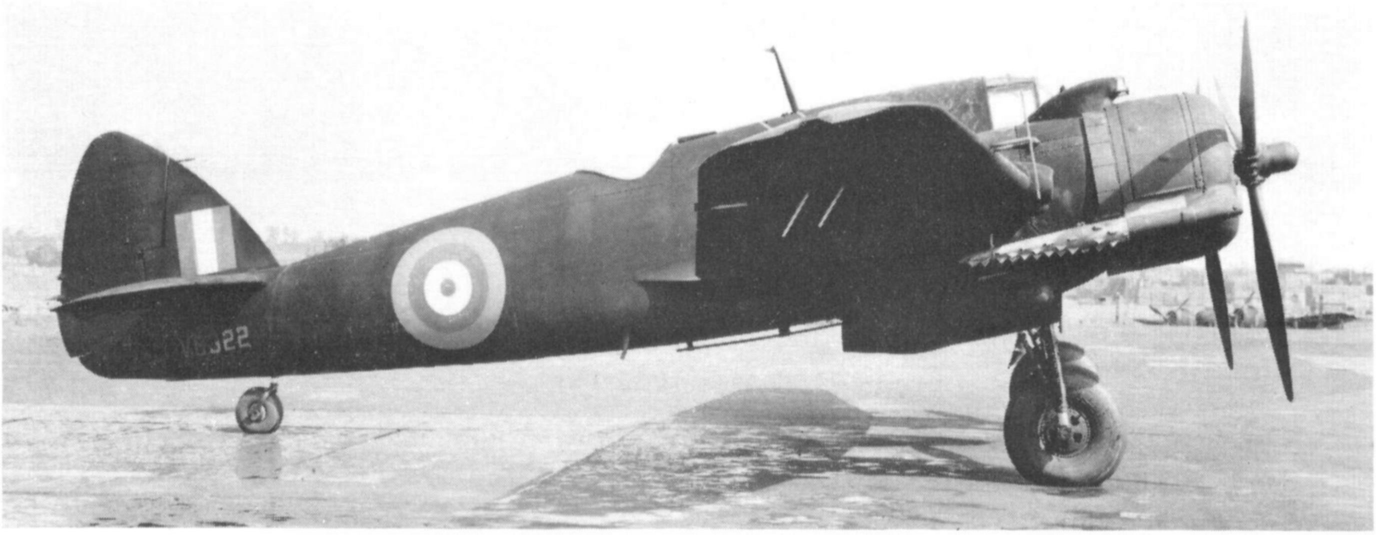
An innovation in the Beaufighter was the arrangement for the emergency exit of the crew of two. Access to the crew positions was gained through hatches in the underside of the fuselage and these were also the emergency exits. A quick release opened each hatch which, being balanced and pivoted horizontally, was swung by the airstream into a vertical position where it locked to create a dead-air region through which the crew could drop without risk of injury—even in a 400 m.p.h. dive. Insofar as the pilot was concerned, the bale-out procedure was something of a gymnastic feat. Having first collapsed the back of his seat by pulling a lever, he then had to grab parallel bars set high, one on each side, and swing himself up and back and down on to the forward escape hatch.

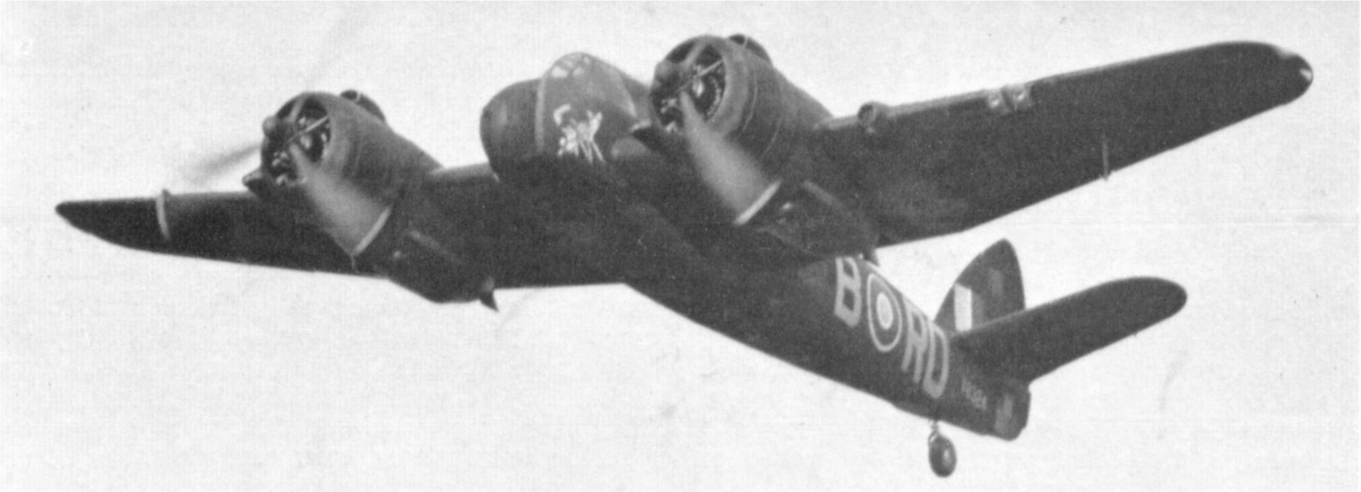
Output of Beaufighters was stepped up by subcontracting major components as widely as possible and two new "shadow factories" were built to assemble complete Beaufighters. One, at Stockport, was managed by Fairey's, who received a contract for 500; the other, at Weston-super-Mare, was "Bristol"-managed. This was the result of the formation, on 14th May, 1940, of the Ministry of Aircraft Production, and the first Minister, Lord Beaverbrook, visited Filton soon afterwards to emphasise the need to get the Beaufighter into service with all possible speed.

Throughout the Battle of Britain, despite official insistence on taking cover during alerts, Beaufighter production continued at a steady pace. In a heavy raid on Filton on 25th September, 1940, however, eight of 50 completed aircraft in the works were destroyed, one of them being the third Rolls-Royce Merlin-engined prototype, R2062.

Meanwhile, Beaufighter armament had undergone considerable development. When the 20 mm. Hispano cannon was adopted at the end of 1938, it had a spring-loaded drum magazine of only 60 rounds capacity.

Late Filton-built Beaufighter IF V8322 in soot-black RDM2 night finish, with A.I. Mk. IV and flame-damper exhausts.





Mk. IF V8324 "RO-B" "Bambi" of No. 29 Squadron—subject of the five-view g.a. drawing on pp. 8 and 9. A.I. aerials were removed from original photo by wartime censor.

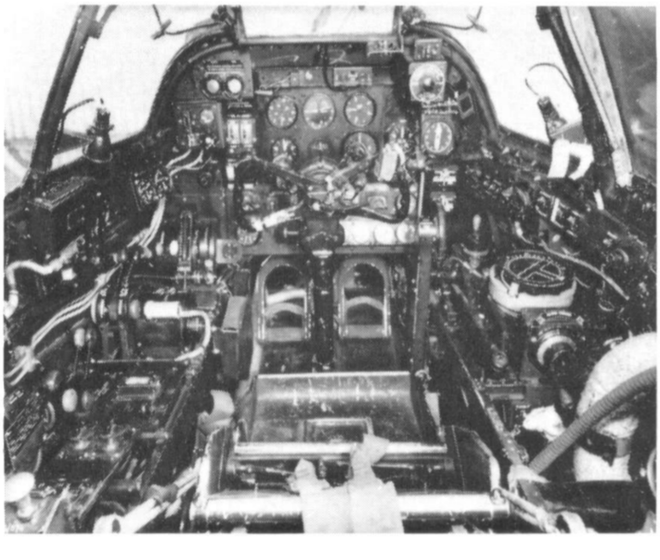
This was awkward and heavy to change, and among various alternative systems investigated was a Bristol proposal for a recoil-operated feed, but this was turned down by M.A.P. armament officials on the grounds that any recoil-driven mechanism would either jam the gun or be wrecked after a short period of use. An entirely new servo-feed mechanism was then devised by the company and, after development, was fitted to the four guns of the fourth Beaufighter prototype (R2055), and presented for official inspection on 6th May, 1940, together with the third prototype (R2054) which had 60-round drum feeds. The latter was approved for the first 50 production aircraft to be manufactured, the new design being approved subject to its satisfactory performance in air gunnery trials and to an increase in capacity from 120 to 240 rounds.

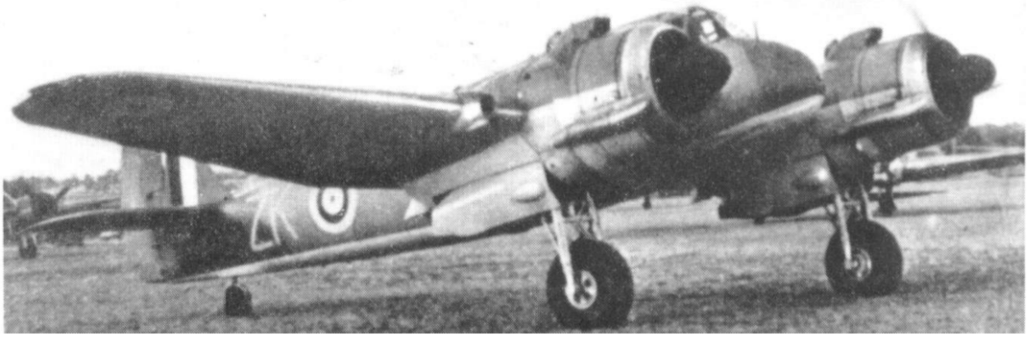
Both aircraft passed their gunnery trials satisfactorily, but in the meantime the Chatellerault recoil-operated feed had been brought over from France by escaping Free French officers and had so impressed M.A.P. that it was adopted as standard for all cannon installations under the title of "Mark I Feed". Only when drawings reached Filton was it realised that the only major difference between the Chatellerault and the first Bristol feed was that the Bristol design extracted rounds from their belt by their rims, whereas the French feed did so by pushing on the shell noses—a feature which led to trouble when pointed armour-piercing rounds were introduced later. Because of these changes in official policy, the Mark I feed only entered service on the 401st Beaufighter in September, 1941, a year later than the equivalent Bristol feed could have done—and hand-changed magazines had to be fitted to more Beaufighters than originally intended.

The first 50 Filton-built Beaufighters had cannon only, but later machines, including the 1,000 ordered from the "shadow factories" had six ·303 inch Brownings installed in the outer wings, two on the port side and four on the starboard. The Beau then became the most heavily-armed fighter in the world, with a fire-power of 780 lb. per minute.

INTO THE LINE

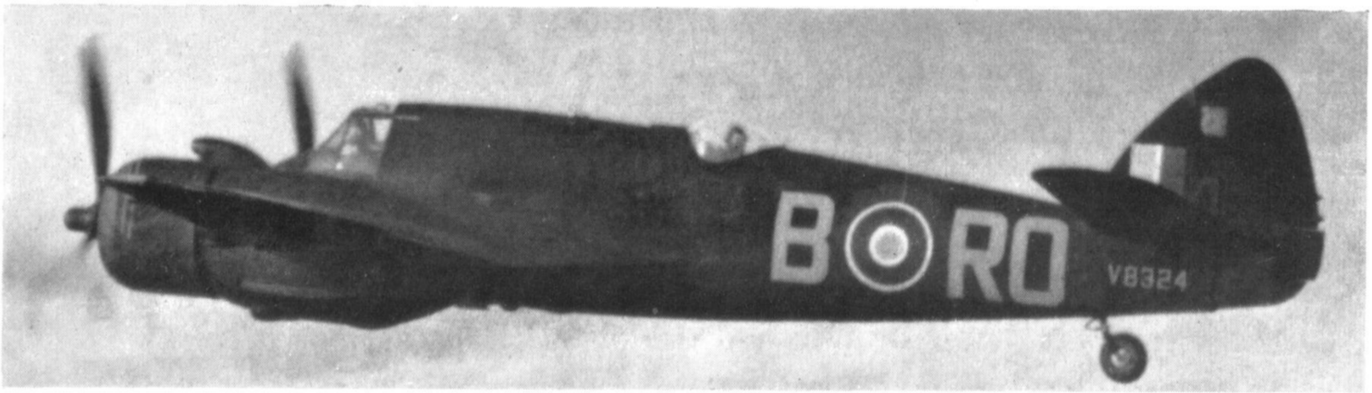
Squadrons began to receive the Beaufighter in September, 1940, when the Battle of Britain was at its height. However, before going into this in more detail, the writer wishes to explain that perusal of contemporary squadron records, i.e. the squadron Operations Record Books, reveals that some of the hitherto widely-held (and oft-quoted) "facts" about the Beau's early service are incorrect. (Incidentally in the present writer's experience, this tendency is not by any means confined to the Beaufighter). The first squadrons to receive Beaufighters were No. 25 based at North Weald, No. 29 (Digby), No. 219 (Catterick) and No. 604 (Middle Wallop). Their first Beaufighters—one apiece—arrived on 2nd September, 1940, and were serialled R2056, R2072, R2070 and R2073 respectively. All these units were flying Blenheim IF's at that time and for various reasons re-equipment with Beaufighters and conversion training took several months to complete.

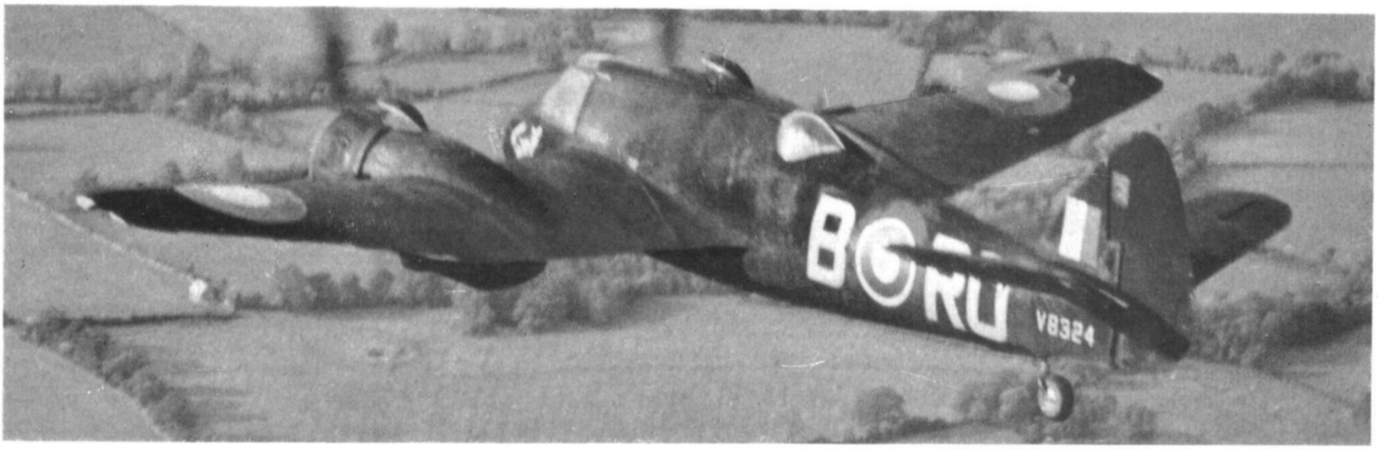




Above: *Mighty wurlitzer: the cockpit of a Beau.*

Left: *R2069 "ZK-A" an early Beaufighter IF of No. 25 Squadron photographed* circa *late 1940. Green-brown-sky finish and medium-grey code letters.*



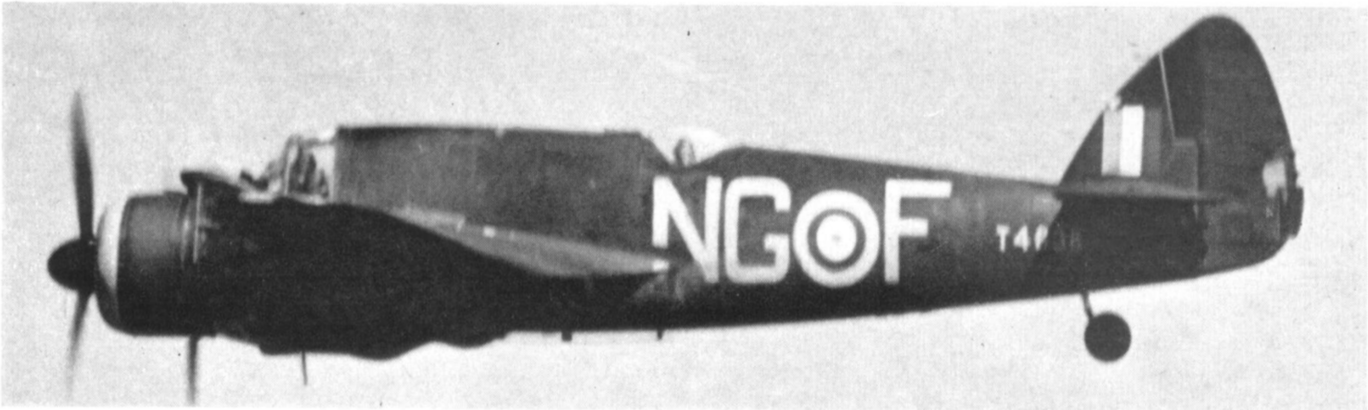


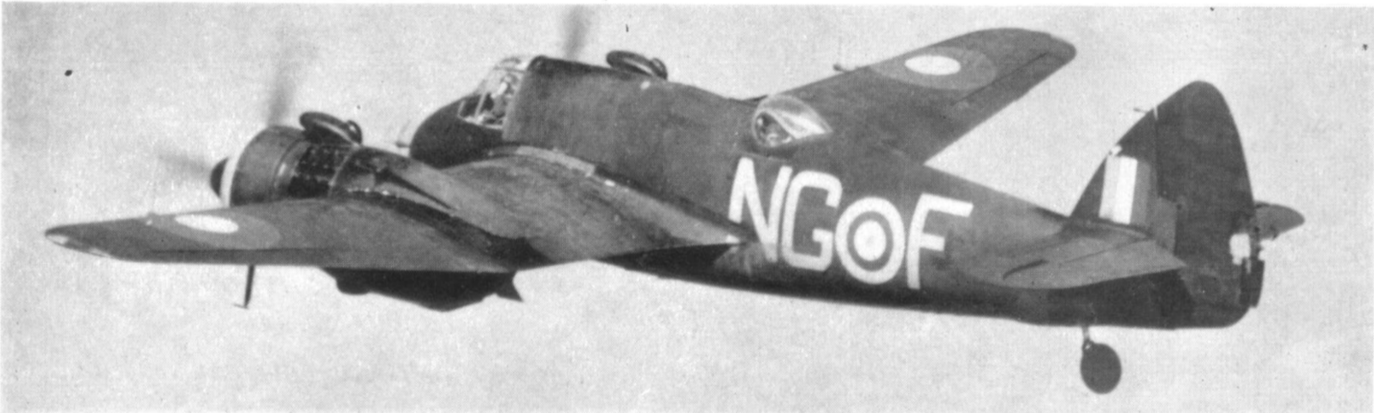
Two more views of No. 29 Squadron's Beau IF V8324 which was named after Walt Disney's famous Bambi.

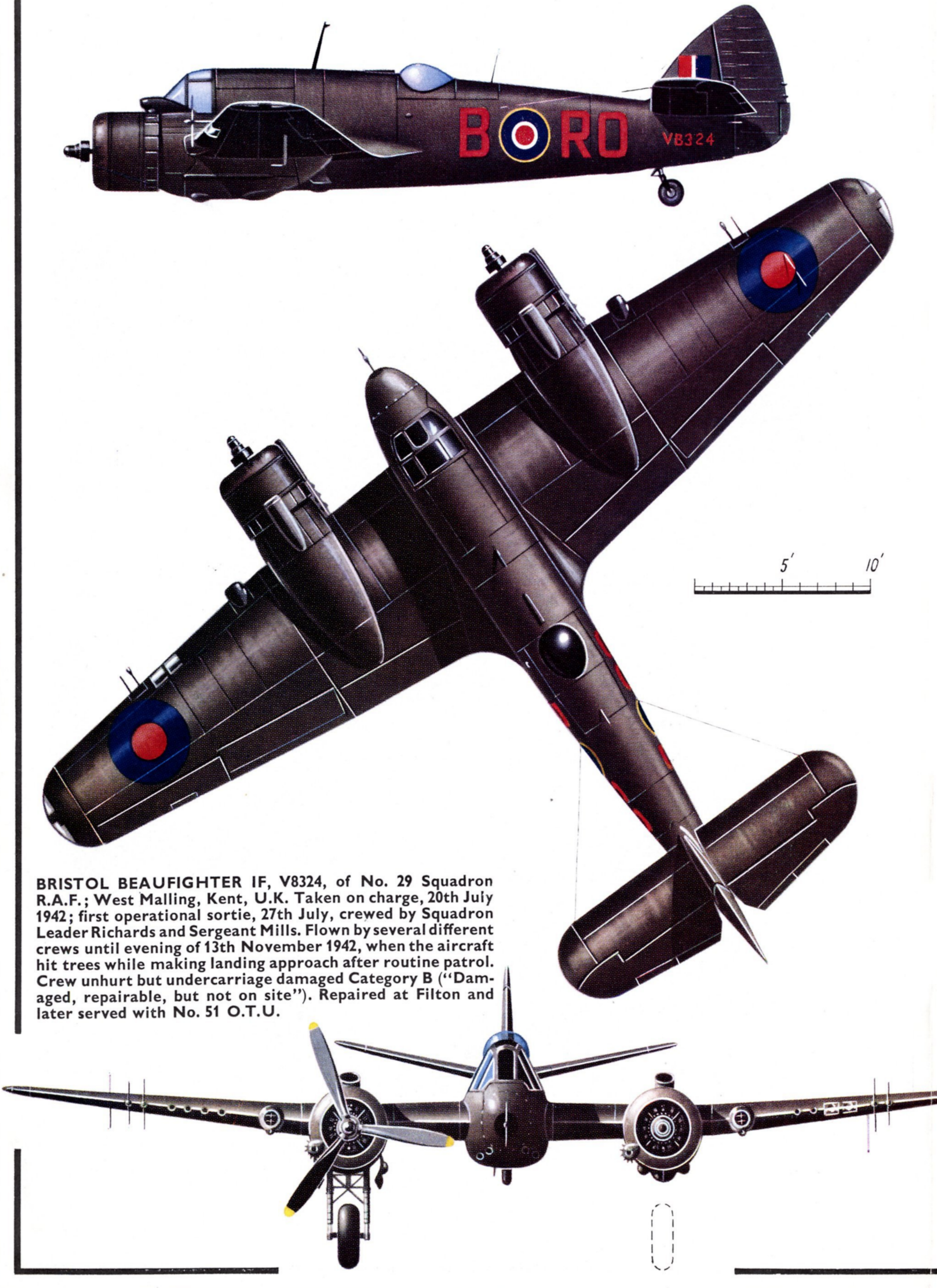
The fifth squadron to re-equip with Beaufighters was No. 600 (Hornchurch), its first machine arriving on 8th September, 1940.

Honour of flying the first operational patrol in a Beaufighter went to No. 29 Squadron on the night of 17/18th September, 1940, when R2077 crewed by S/Ldr. Widdows and P/O Watson made an uneventful sortie lasting from 23.55 hrs. to 01.05. The following evening, between 20.30 and 21.35 hrs. the same crew, flying in R2077 this time, made what the squadron O.R.B. describes as "the first operational flight of the Beaufighter by day". In his entry the diarist remarks "The machine appears a very popular aircraft with those who have flown it. It is not much more difficult to fly at night than a Blenheim. The lack of nose in front of the pilot for approach and landing is rather strange, but the machine generally is more pleasant at night than a Blenheim owing to its superior manoeuvrability. Re view, although better than a Blenheim it is still somewhat restricted by the thickness

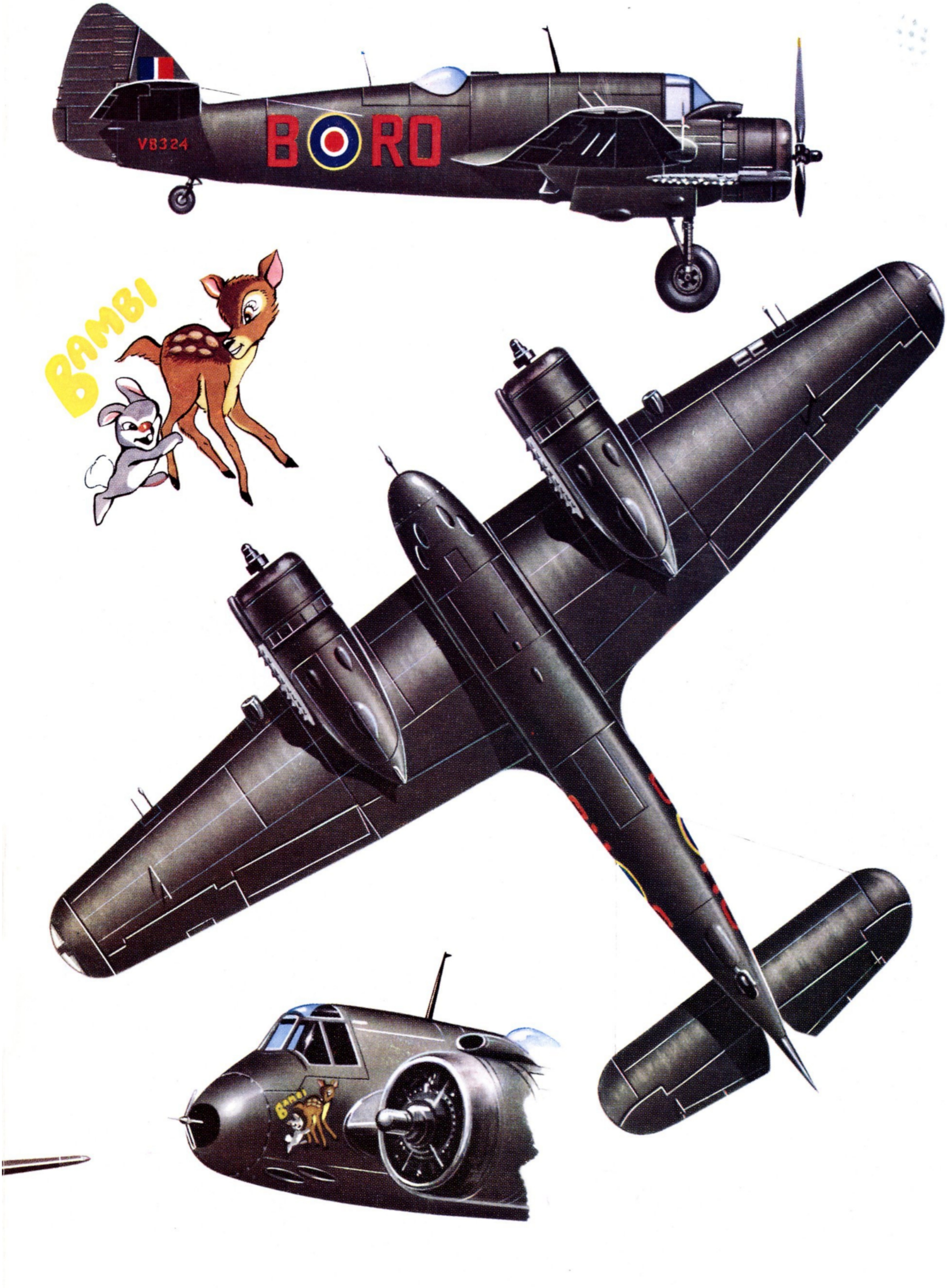
Two views of Beaufighter IF T4638 "NG-F" of No. 604 (County of Middlesex) Squadron.







BRISTOL BEAUFIGHTER IF, V8324, of No. 29 Squadron R.A.F.; West Malling, Kent, U.K. Taken on charge, 20th July 1942; first operational sortie, 27th July, crewed by Squadron Leader Richards and Sergeant Mills. Flown by several different crews until evening of 13th November 1942, when the aircraft hit trees while making landing approach after routine patrol. Crew unhurt but undercarriage damaged Category B ("Damaged, repairable, but not on site"). Repaired at Filton and later served with No. 51 O.T.U.


V8324
B
RO
BAMBI
Bambi

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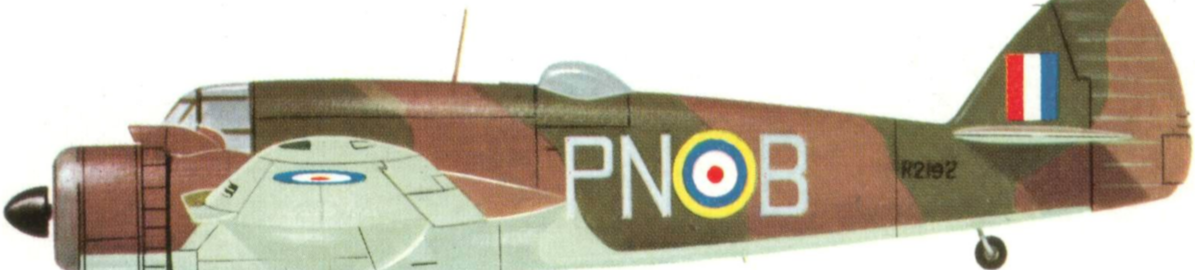
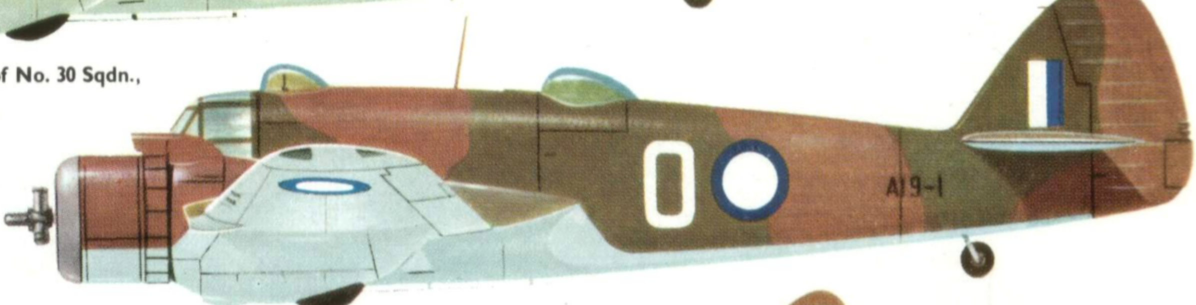
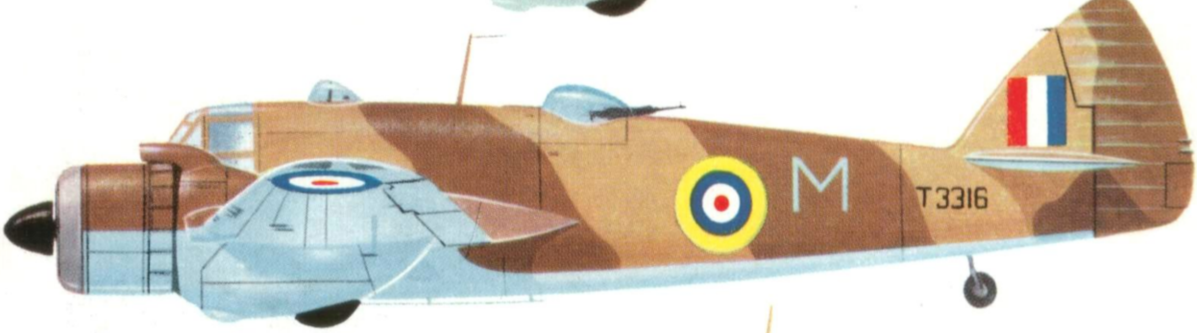
Beaufighter Mk. IF, R2192, of No. 252 Sqdn., Coastal Command, 1941.



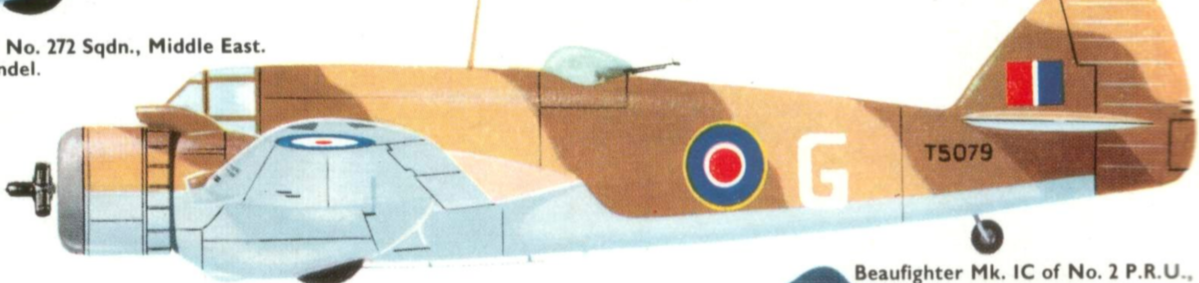
Beaufighter Mk. IC, A19-1, of No. 30 Sqdn., R.A.A.F., New Guinea, 1942.



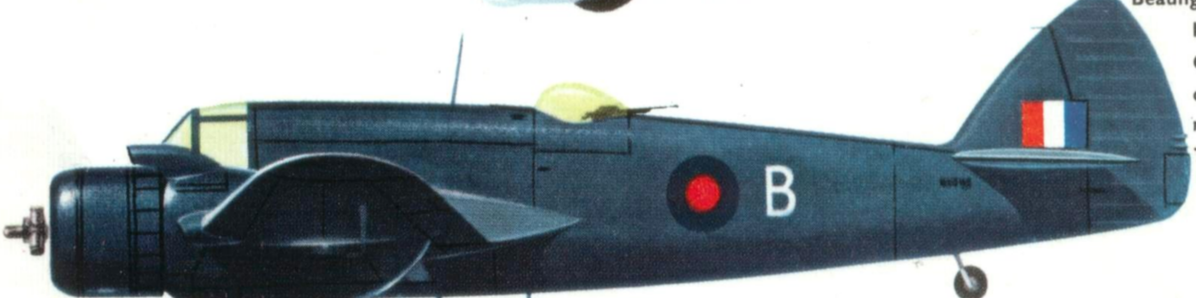
Beaufighter Mk. IC, T3316, of No. 272 Sqdn., Middle East, 1941.



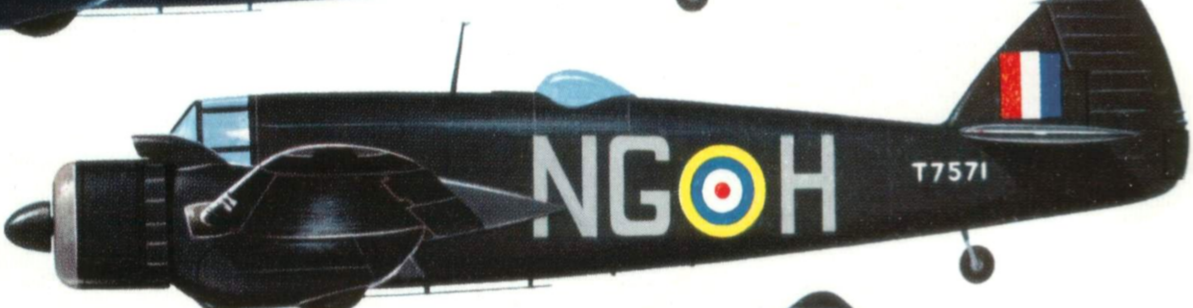
Beaufighter Mk. IC, T5079, of No. 272 Sqdn., Middle East. Note later style fuselage roundel.

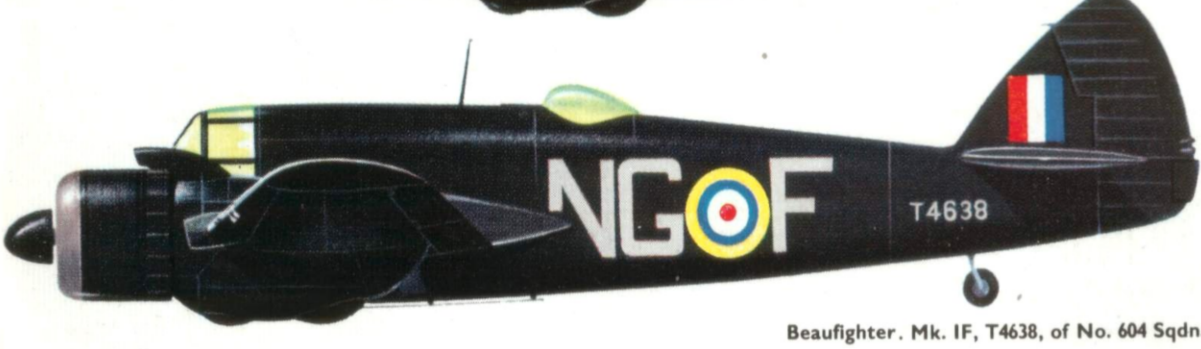


Beaufighter Mk. IC of No. 2 P.R.U., Heliopolis, Egypt, early 1942. One of two a/c used for clandestine photographic missions over the entire Turkish coastline.



Beaufighter. Mk. IF, T7571, of No. 604 Sqdn., Middle Wallop, U.K., 1941.

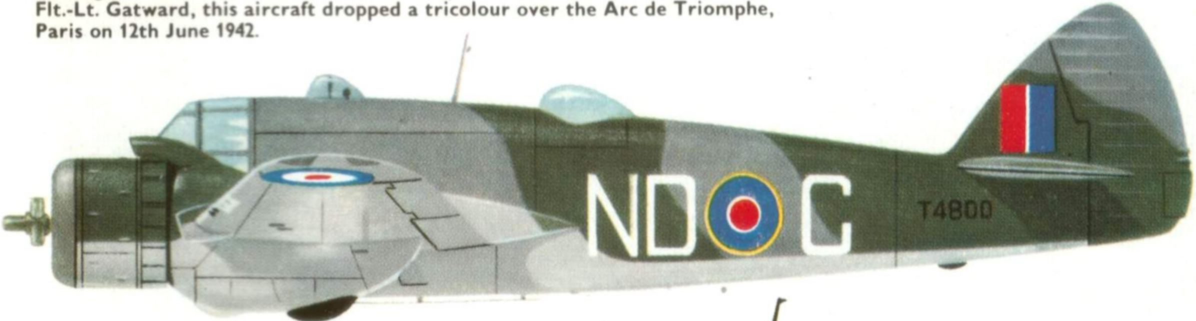




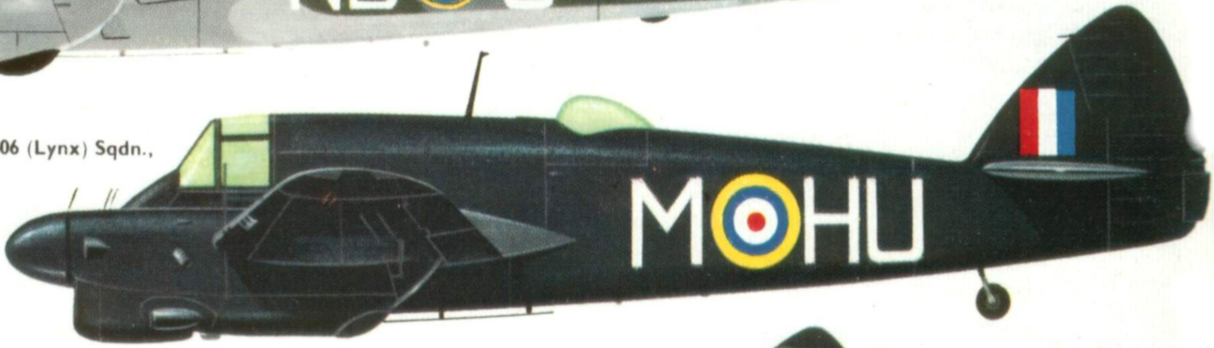
Beaufighter. Mk. IF, T4638, of No. 604 Sqdn., Middle Wallop, U.K., 1941.

Beaufighter Mk. IC, T4800, of No. 236 Sqdn., Wattisham, U.K.; flown by Flt.-Lt. Gatward, this aircraft dropped a tricolour over the Arc de Triomphe, Paris on 12th June 1942.

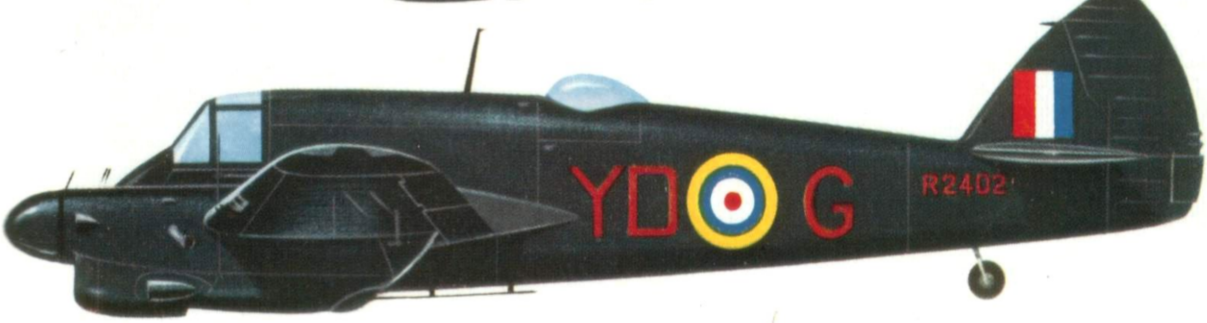
©WARRD—



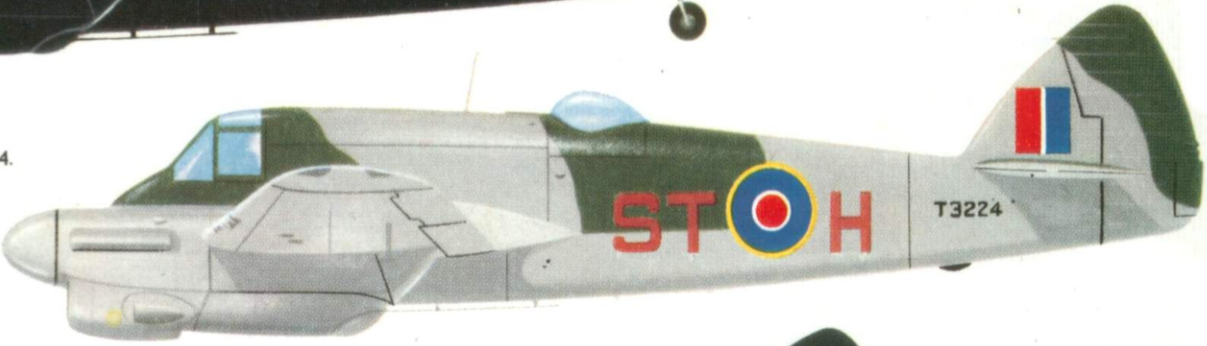
Beaufighter Mk. IIF of No. 406 (Lynx) Sqdn., R.C.A.F.



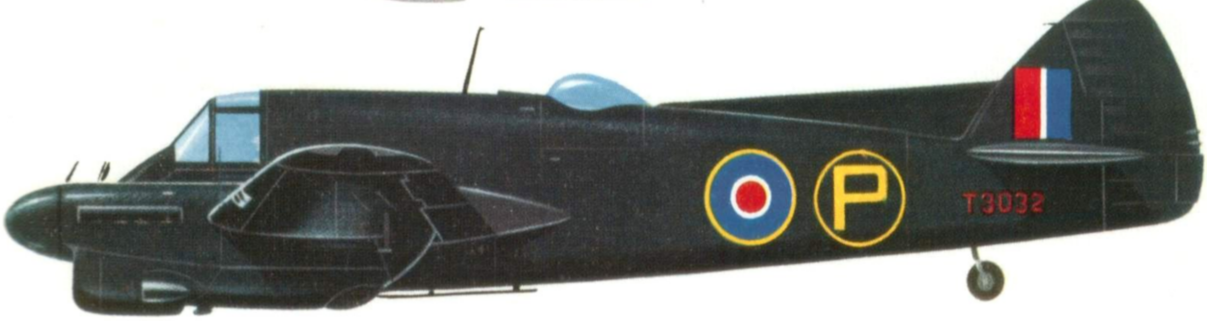
Beaufighter Mk. IIF, R2402, of No. 255 Sqdn., Coltishall, U.K., April 1942.



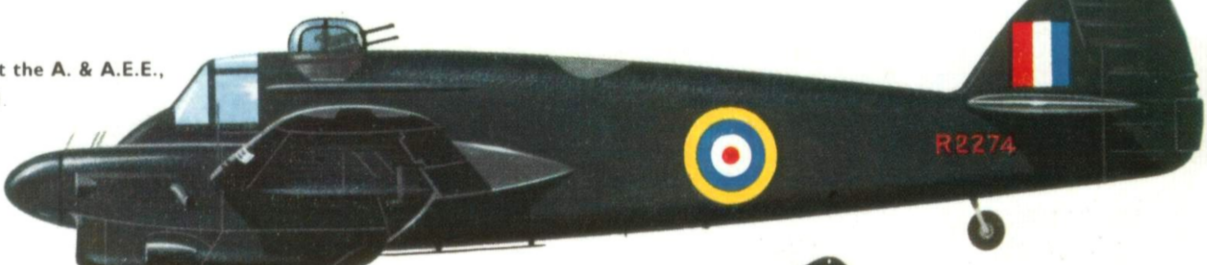
Beaufighter Mk. IIF, T3224, of No. 54 O.T.U., U.K., 1944.



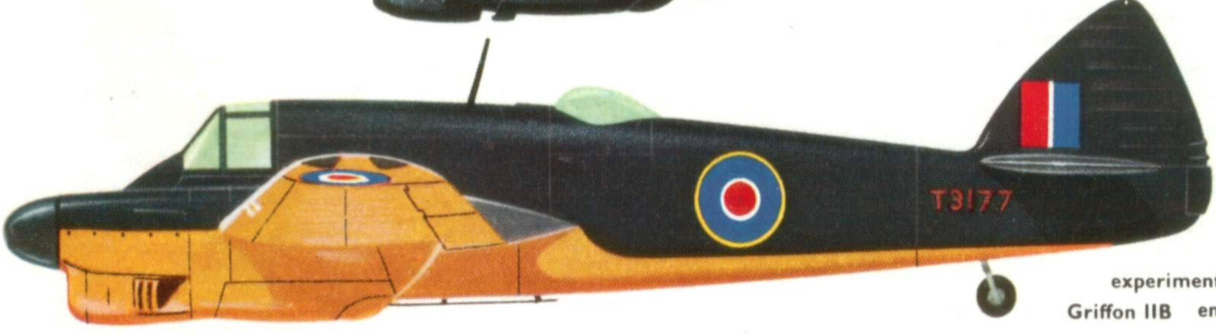
Beaufighter Mk. IIF, T3032, with an experimental dorsal fin.

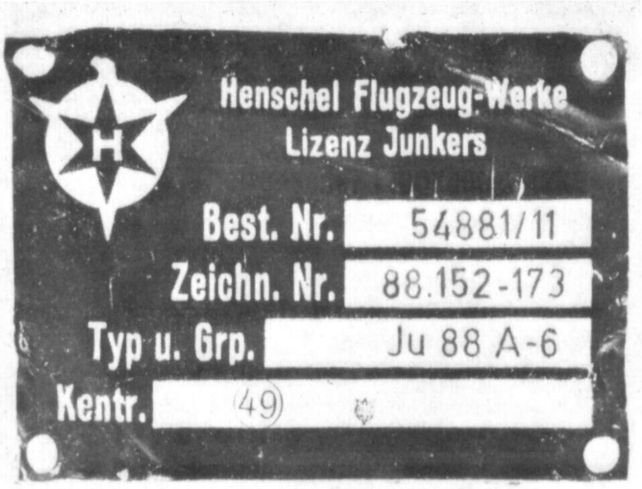


Beaufighter Mk. V, R2274, at the A. & A.E.E., Boscombe Down, U.K., 1941.



Beaufighter Mk. IIF, T3177, experimentally fitted with Rolls-Royce Griffon IIB engines, Hucknall, U.K., 1941.





Manufacturers' plate from Ju 88A-6 destroyed on night of 2nd May 1941 by R2208 *of No. 604 Sqn. from Middle Wallop, flown by F/Lt. George Budd with Sgt. George Evans as A. I. operator. The interception took place over the New Forest under G. C. I. from Sopley* (*controller, F/Lt. Brown*), *the Junkers, from which there were two survivors, crashing near Lyndhurst.*
(Photo by courtesy K. Broomfield).

of the windscreen members . . .".

The first confirmed "kill" by a Beaufighter was apparently chalked up by R2097 (Sgt. Hodgkinson and Sgt. Benn) of No. 219 Squadron, then based at Redhill, on the evening of 25th October, 1940, when the victim was a Do17. The first "kill" by a A.I.-equipped Beau was on the night of 19/20th November, 1940, when a 604 Squadron machine (R2098) crewed by F/Lt. John Cunningham and Sgt. J. Phillipson destroyed a Ju88.

At this juncture it is necessary to explain that the first Beaufighters to enter squadron service lacked A.I. Mk. IV radar initially but this was installed at an early date by No. 32 M.U. at St. Athan. No. 600 Squadron's O.R.B. records that on or about 12th September, 1940, two of its Beaufighters were despatched to St. Athan for that purpose.

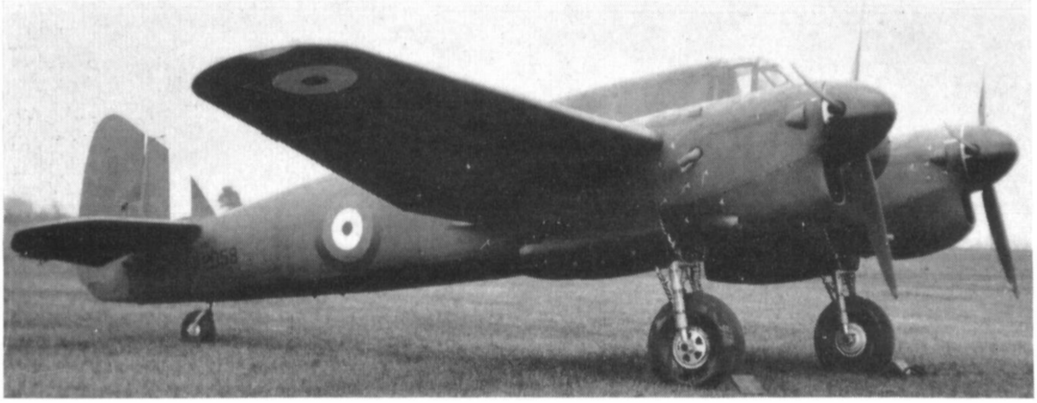
Despite its early promise, A.I. Mk. IV radar suffered from the restriction on range imposed by the earth's own echo. With the arrival in January 1941 of the first G.C.I. sets, this defect was overcome and fighter "kills" rapidly mounted. By March, half of the 22 "kills" claimed by fighters were credited to Beaufighters. And in the heavy "blitz" on London on 19/20th May, 1941, 24 of the enemy were shot down by fighters compared with only two by AA guns; it was then that the Night Battle of Britain virtually ended.

Throughout 1940-41 Beaufighter production mounted steadily. Filton despatched its 100th machine on 7th December, 1940, and its 200th on 10th May, 1941. Fairey's first Beaufighter I was test flown on 7th February, 1941 and the first Weston-built machine on 20th February.

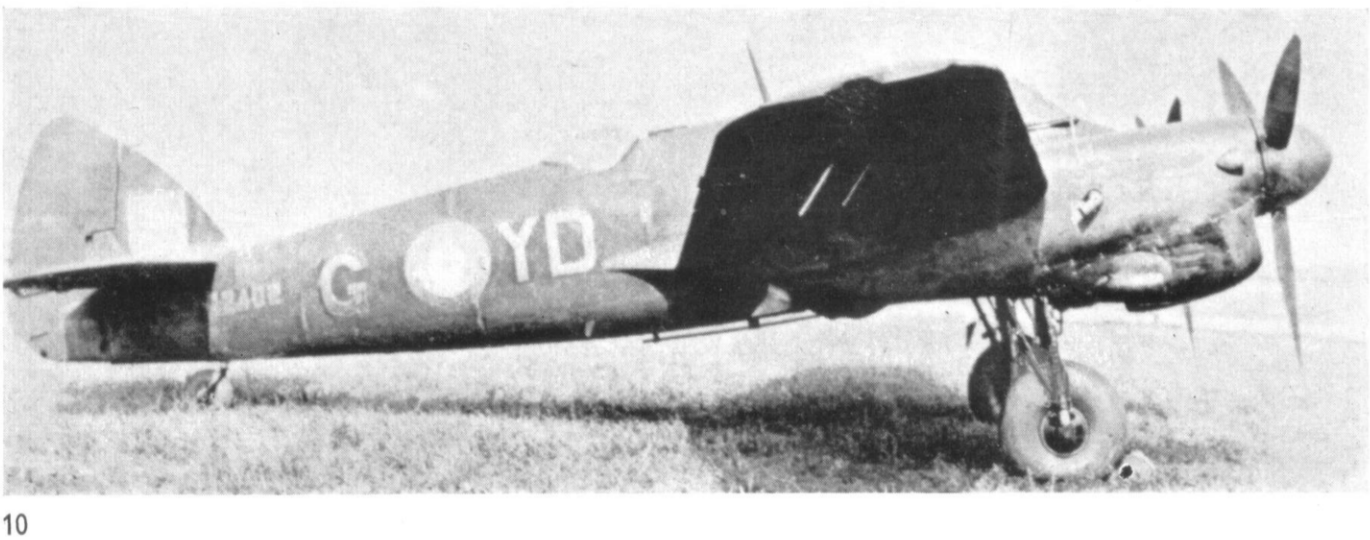
THE MARK II

The two Rolls-Royce prototypes (R2058 and R2061) were delivered by Filton on 30th November and 28th December, 1940, respectively, the first of these having flown at Rolls-Royce's airfield at Hucknall in the previous July. It had done so with Merlin X's temporarily fitted because no Merlin XX engines were then available. The long power plants increased the tendency to swing on take-off, so R2058 was fitted with an experimental high aspect-ratio fin and rudder, but without significant improvement.

The first production Beaufighter II (R2270) flew on 22nd March 1941, and eventually 447 were built—all at Filton. Deliveries to squadrons began in late April, 1941, when R2277 and R2278 went—within a few days of each other—to Nos. 604 and 600 squadrons respectively. It should, perhaps, be mentioned that although No. 604 was the first



Left: *R2058, the first prototype Beaufighter II, with Merlin Xs and wool tufts on nacelles for airflow investigation.*



Below: *R2402, a production Mk. II of No. 255 Squadron, Coltishall, in September, 1941. This Mark was not popular because, although faster at altitude, it lacked the punch of the Hercules for a short take-off at night; also it was slightly tail heavy.*

Two presentation Mk. IIFs; T3019 "Middelburg I" (top) *and T3426 "Flying Standard"* (below). *Compare fuselage roundels.*

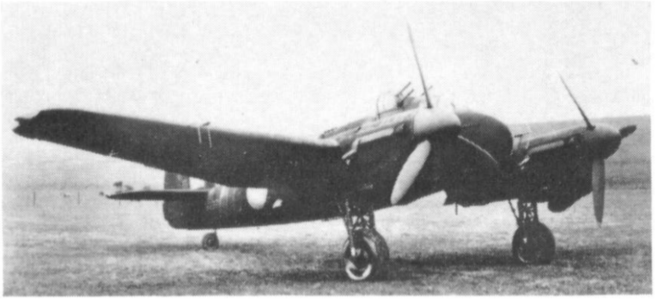
recipient, No. 600 was the first unit to receive Mk. IIs in quantity—in May, 1941. In addition to serving with the R.A.F. the Beaufighter II was used by various Fleet Requirements Units of the Fleet Air Arm.

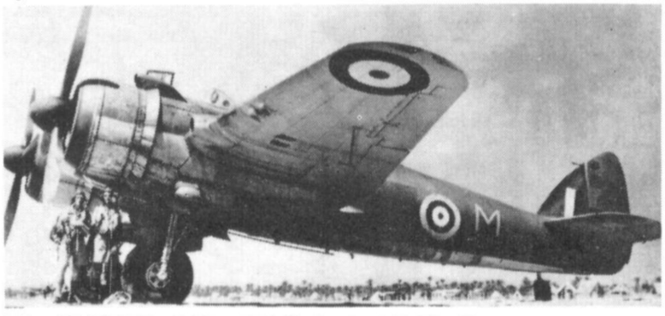
In the same month that the first production Mk. II emerged, two other Mk. IIs (R2274 and R2306) were converted on the production line into an experimental variant, the Beaufighter V. In this version the six wing guns and two inboard cannon were removed and a Boulton-Paul four-gun BPA.I dorsal turret (Defiant-type) installed just behind the pilot, the observer's "blister" hood being replaced by a flush panel. The object of the experiment was to overcome the nose down tendency experienced through the recoil of the cannon when firing. Both aircraft underwent operational trials (apparently R2274 served with No. 406 (R.C.A.F.) Squadron, while R2306 flew with No. 29 Squadron and was coded "RO-O") but were found unsuitable because the turret obstructed the pilot's parachute exit. According to an A. & A.E.E. Boscombe Down handling report on R2274, prepared in August, 1941, the Mk. V at 19,300 ft. had a top speed of 302 m.p.h.

Meanwhile, events in the Middle East had emphasised the need for long-range fighters in Coastal Command, and a modified type of Beaufighter I had been proposed with guns replaced by fuel tanks, a navigator's table and instruments for the observer and a D/F loop in the former camera-gun position on the fuselage. Following experiments with R2152 and R2269, a batch of 97 coastal Beaufighters was completed post-haste; but it was impossible to incorporate the extra wing tanks on the production line and 50-gallon Wellington tanks were temporarily mounted on the floor between the cannon bays. The first machines of this type were issued to No. 252 Squadron in March/April, 1941 (commencing with T3228 on 8th March) and by May they had been flown out to the Middle East to protect an important supply convoy bound for Egypt. Once in that theatre, the squadron proved so successful that it was kept there, still flying Beaufighters, for the rest of the war.

To meet an increasing demand for Beaufighters from Coastal Command, Faireys and the Weston factory turned over entirely to coastal machines, with alternative desert equipment. The Filton works, however, after completing the batch of 97 coastal Beaufighters (many of which were for Nos. 252 and 272 Squadrons) reverted to building only night fighters. Early Beaufighters had fixed fittings for both day and night duties; but as these rôles became increasingly divergent, two distinct airframes were standardised, distinguished by the suffixes F (for Fighter Command) and C (for Coastal Command) appended to the Mark number. All production Mark II Beaufighters were Mk. II F.

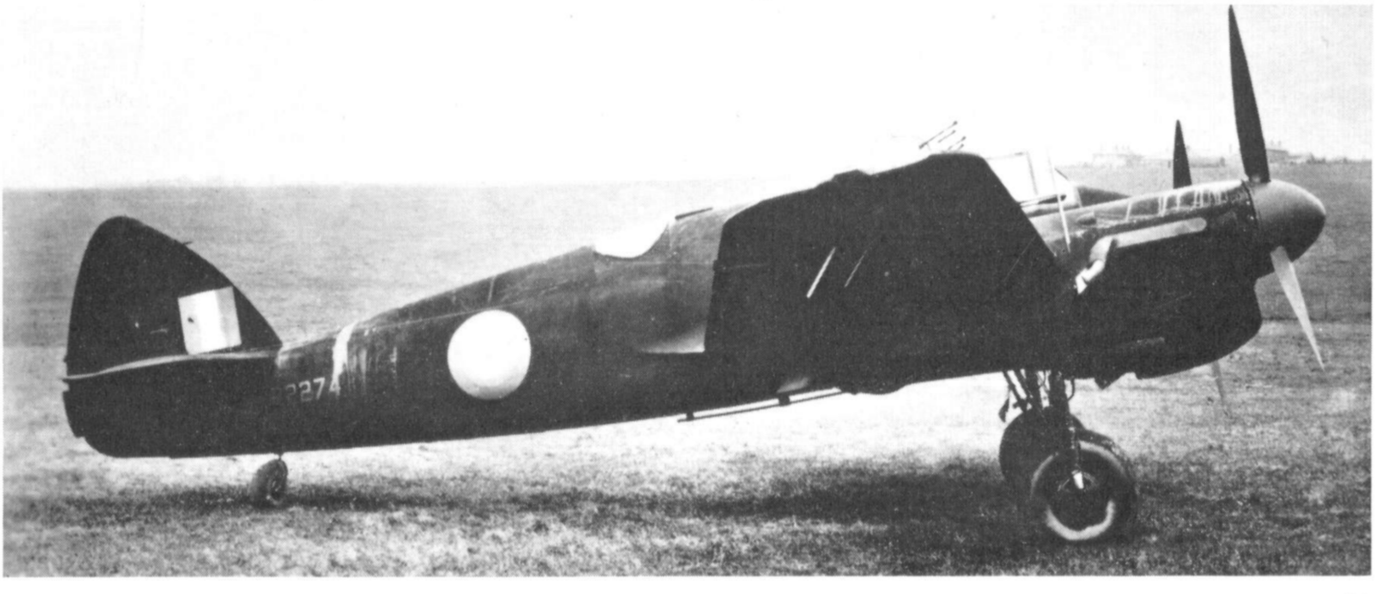
Numerous Beaufighter Is and IIs were the subject of special modifications and trial installations, and by the summer of 1941 no less than twenty aircraft

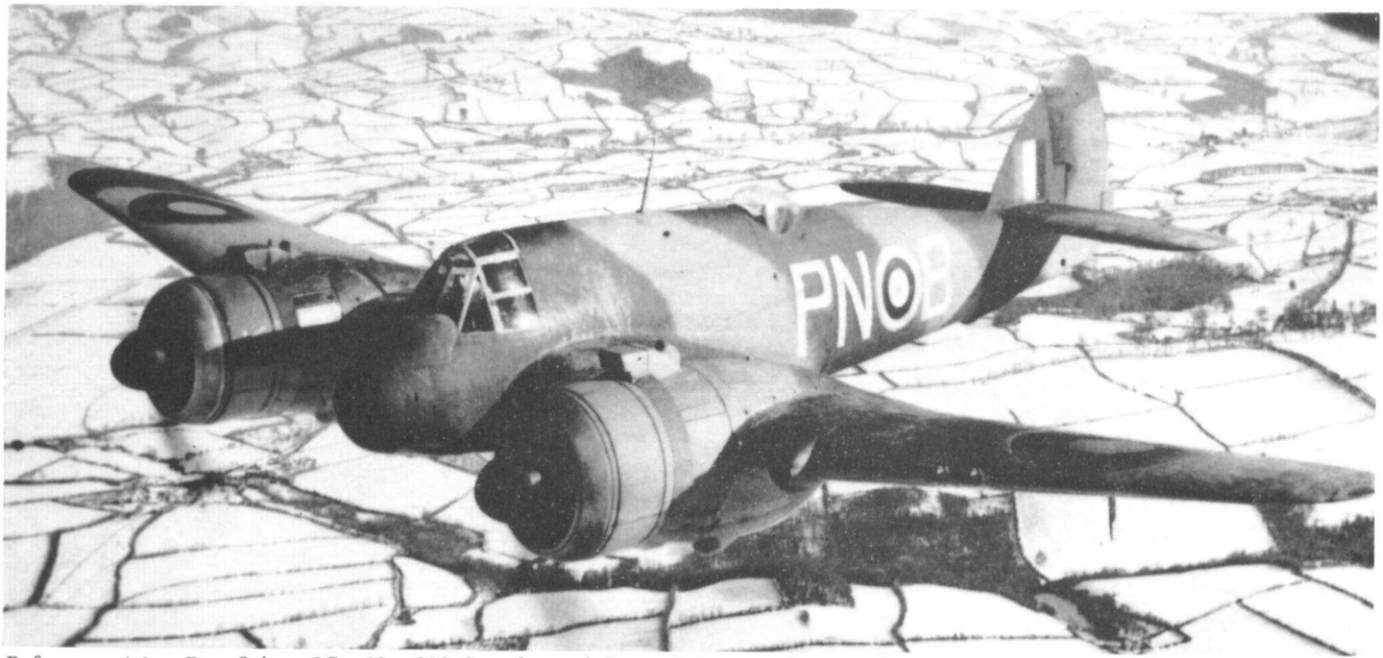




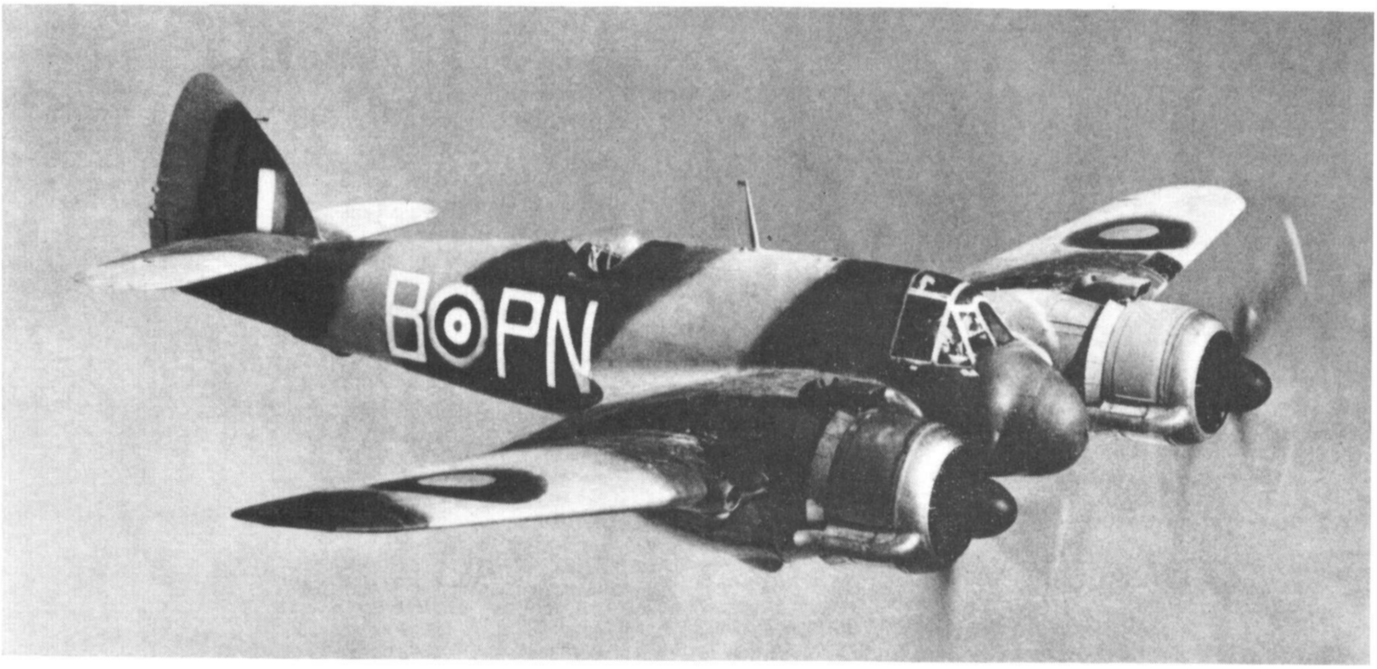
Mk. IC T3315 of No. 272 Sqdn. in Middle East.

Above left and below: *Beaufighter V R2274 at Boscombe Down in May, 1941.*

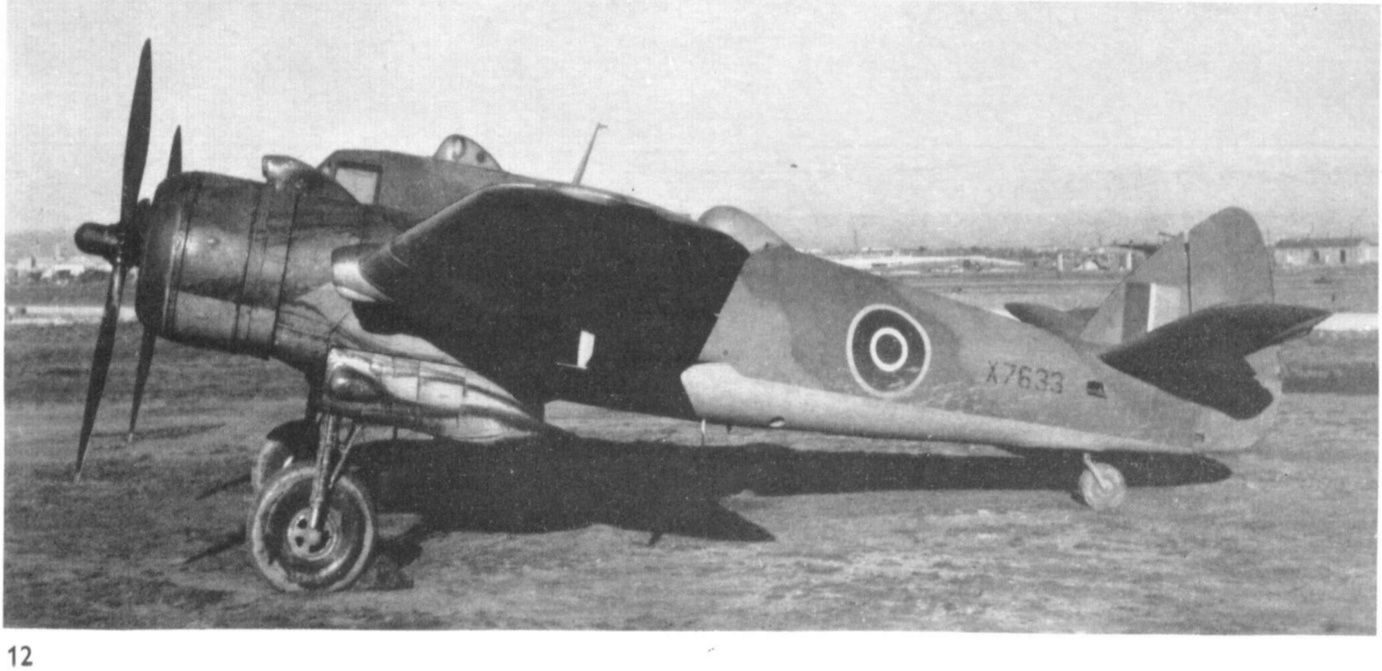


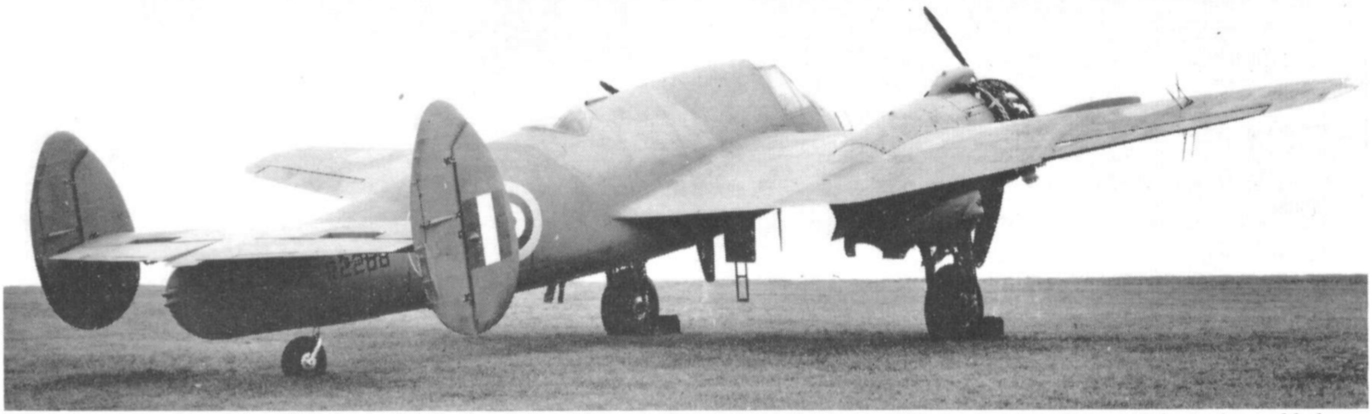


Before receiving Beaufighter ICs, No. 252 Squadron of Coastal Command received some Mk. IF's in brown-green-sky finish like R2198 "PN-B" (above and below) which had sky code letters.

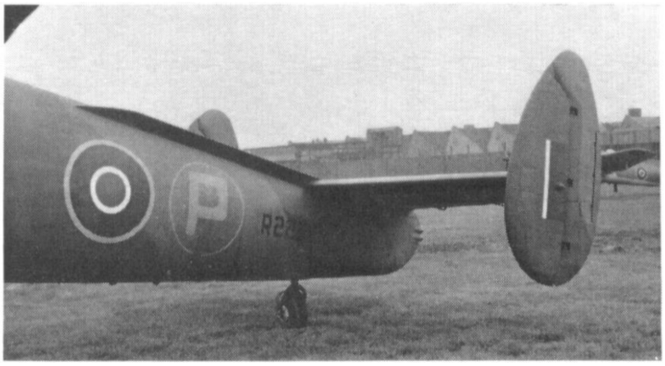


Below: *X7633, a "tropicalised" Mk. IF in the Middle East. Note D/F loop and blister.* (Photo: Howard Levy)



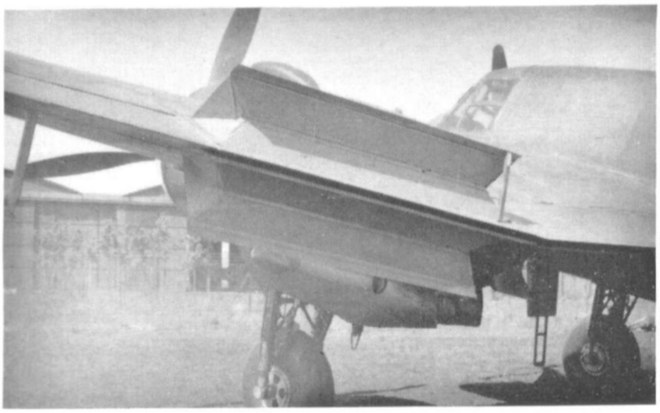


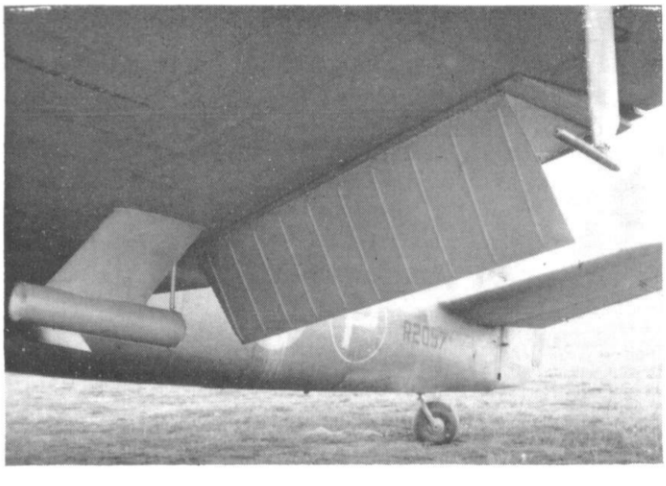
Mk. IF R2268 with wide tail plane and twin fins and rudders at Filton in 1940. Below: *Same machine later, with strakes added.*



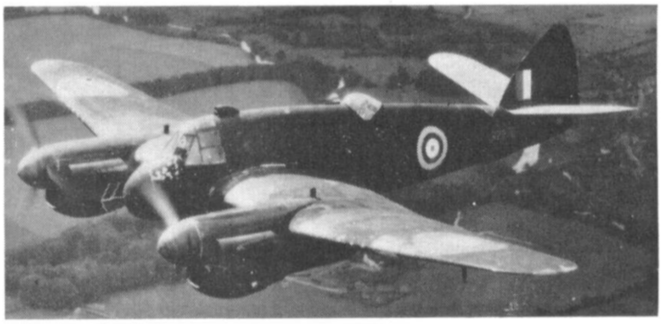
were reserved for test purposes, including three (R2130, X7542 and X7543, all Mk. IFs) engaged on development of the Hercules VI, and three more that were being used in experiments to improve longitudinal stability. One of these (Mk. I FR2268) was fitted with a widened tailplane with end-plate fins and rudders, while a tailplane incorporating 12 degrees dihedral was fitted to a Mk. IF (R2057) and a Mk. I IF (R2270). The dihedral tailplane proved effective, although Fighter Command squadrons generally preferred the extra manoeuvrability of the flat tailplane despite its discomforts. R2057 also tested the Fairey-Youngman bellows-type dive-brake, originally proposed for night fighter use to permit rapid overtaking of a target without risk of collision at the last moment. This was also adopted as standard for Coastal Command Beaufighters and proved particularly valuable on the later torpedo variant. (It is intended, in due course, to describe these torpedo aircraft in a *Profile* on the Marks VI *et seq.*). Another interesting test installation on a Mark I, this time on the fourth prototype (R2055), was of two experimental 40 mm. heavy guns. The four nose cannon were removed and in their place were fixed a Vickers "S" gun on the starboard, and a Rolls-Royce BH gun on the port side. Trials at Duxford showed the Vickers gun to be the better for Service use, and it was put into production for the tank-busting Hurricane Mk. IIDs for desert warfare.

Two views of Mk. IF R2057 which had Fairey-Youngman bellows-type dive brakes and dihedral tail plane. The bellows were held shut by suction from the venturi below the wing.

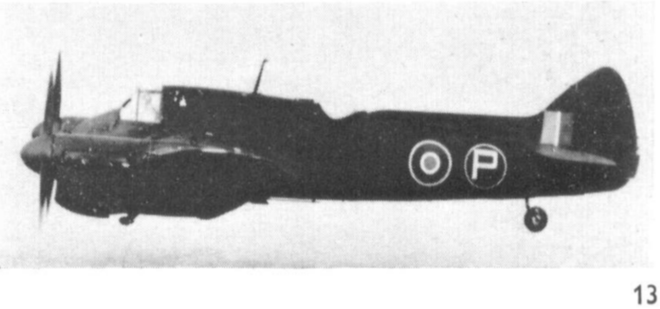


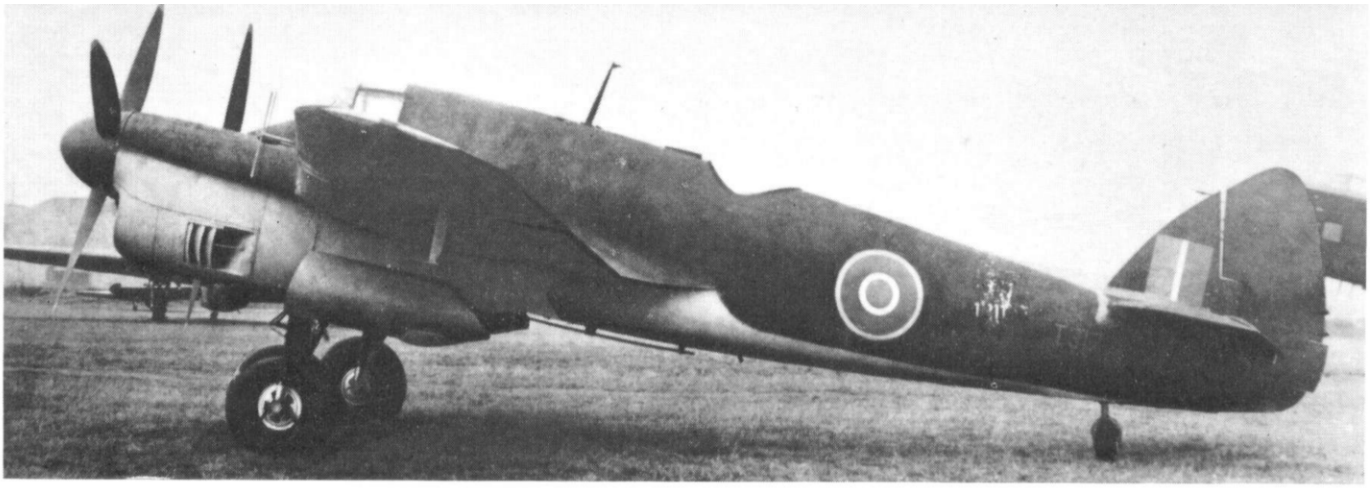


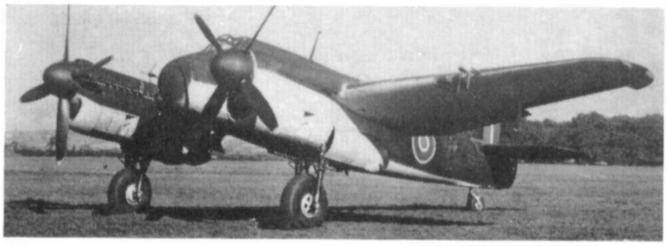
When the air offensive was stepped up in 1941 to prevent deployment of the *Luftwaffe* against Russia, Beaufighter Is and IIs began intruder operations over France and Belgium. Beaufighters of Coastal Command began their reign of terror over enemy shipping in European waters and helped cover the raid on Vaagsö in Norway in December, 1941. In 1942 they began long-range patrols over the Bay of Biscay shooting down Ju88s and Fw200s ("Big Bad Wulfs" as they were known to the boys of Coastal) which attempted to intercept our aircraft operating on anti-submarine duties. Meanwhile, ever-increasing numbers of Beaufighter Is were making their presence



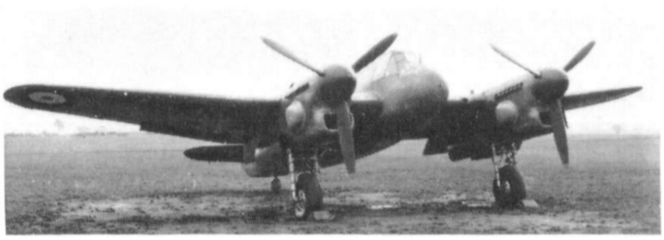
Above: *Beaufighter IIF R2270 with dihedral tail plane.* Below: *T3032, a Mark II with dorsal-fin extension later adopted for the Mk. X.*



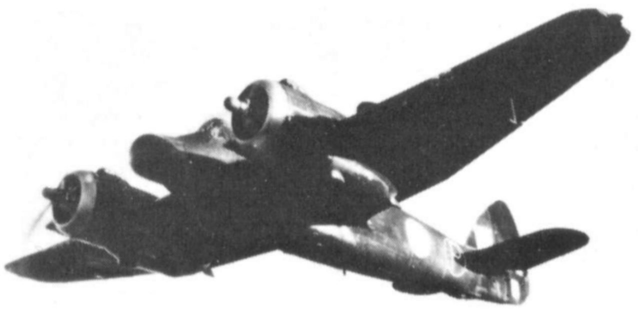




Above: *Two views of T3177, a Mk. II allocated to Rolls-Royce as a Griffon IIB test-bed.*



Immediately above: *The second prototype Mk. II, R2061, seen here with R.R. "Exe"-type nacelles with extended tails.* Below: *X7579, a Beaufighter IF with A.I. Mk. VII centimetric radar.*



felt in the Middle East. In July 1941 alone No. 272 Squadron, based on Malta, claimed 49 enemy aircraft destroyed and 42 more damaged. Beaus co-operated with the Eighth Army in the Western Desert and also intercepted enemy shipping in the Mediterranean. Their ground-strafing in the Western Desert was one of the high-lights of that campaign. The story is told of a column of Italian troops actually surrendering to three Beaufighters which circled round and round, herding the Italians into a group before shepherding them back towards the British lines.

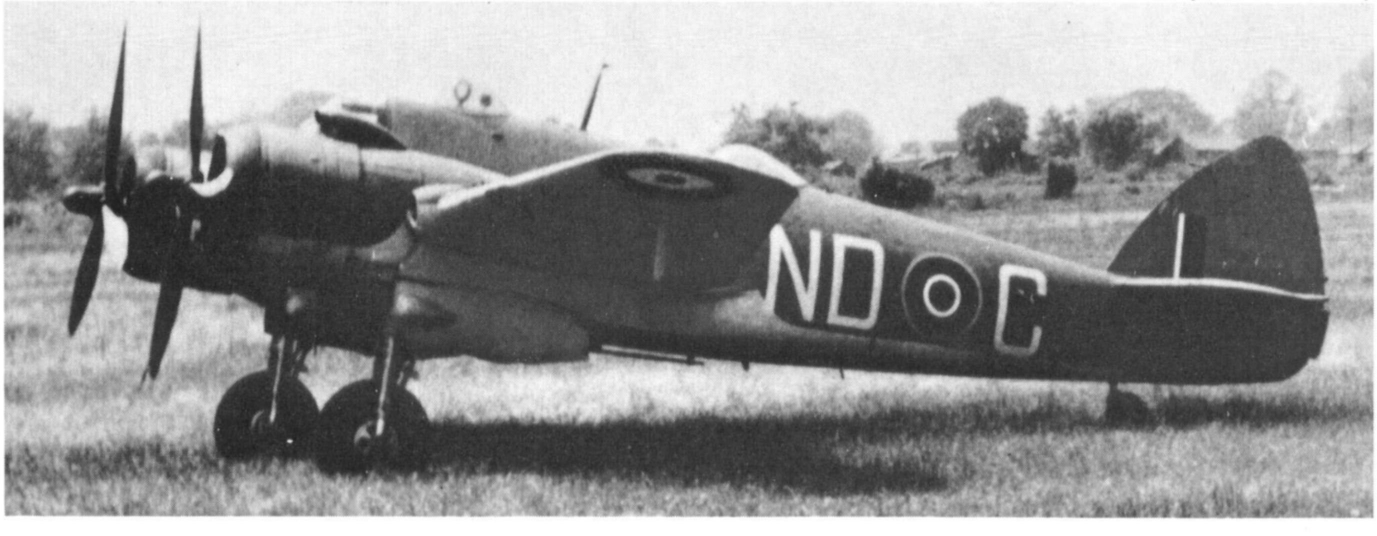
One Beaufighter flight ranks as perhaps the most impudent of the war. On 12th June, 1942, a Fairey-built Mark IC of No. 236 Squadron (T4800 "ND-C") crewed by F/Lt. A. K. Gatward and Sgt. G. Fern, flew from Thorney Island at "deck level" all the way to Paris in daylight and dropped a *tricolore* on the Arc de Triomphe as a gesture of defiance. It then attacked with cannon fire the Gestapo headquarters in the Place de la Concorde.

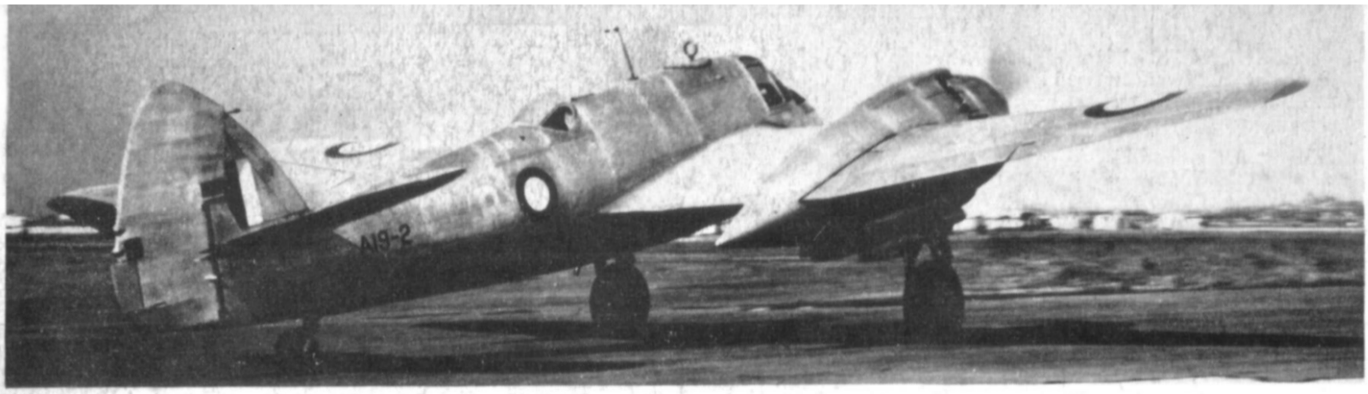
AUSTRALIAN BEAUFIGHTERS

The outstanding success of the Beaufighter as a long-range, hard-hitting aircraft resulted, in January, 1943, in the decision being taken by the Australian Government to produce an Australian version under the A8 designation at Fisherman's Bend. Meanwhile U.K.-built Beaufighters were imported and the first aircraft A19-1 (first of 76 Mk. ICs supplied to the R.A.A.F.), arrived on 20th April, 1942, and the last, A19-218, on 20th August, 1945. For the record these aircraft, in addition to Mk. ICs included Mks. VIC, X and XIC. And the first Australian-built Beaufighter, Mk. 21 A8-1, flew on 26th May, 1944.

The R.A.A.F.'s imported Beaufighter ICs began operations in 1942 with No. 30 Squadron in New Guinea and No. 31 Squadron in North-West Australia.

Mk. IC T4800 "ND-C" in which F/Lt. Gatward and Sgt. Fern made their daring sortie to Paris—from Thorney Island. Photograph taken at Wattisham, No. 236 Squadron's base at that time. (Photo: Imp. War Museum)





Two views of Fairey-built Beaufighter IC A19-2 in 1943 with Australian installation of Wright Cyclone GR2600-A5Bs in long nacelles for proposed production variants, Beaufighter VIII and IX.

In March, 1943, the aircraft achieved world-wide fame when Damien Parer filmed the Battle of the Bismarck Sea over the shoulder of pilot F/Lt. "Torchy" Uren.

Another kind of "victory" was claimed by No. 30 Squadron at Goodenough Island on 2nd November, 1943, when A19-54 won the second of two unofficial races against a Boston of No. 22 Squadron.

Most wartime R.A.A.F. Beaufighters were camouflaged, but at least two, A19-2 (which was experimentally fitted with Wright Cyclones) and A19-10, had a natural metal finish.

The writer acknowledges his indebtedness to the researches of C. H. (Chris) Barnes, author of Bristol Aircraft Since 1910 (Putnam).

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PRODUCTION

Beaufighter I. Prototypes R2052-5 (4 a/c).

Mk. IF. *Filton-built.* R2056, R2057, R2059, R2060, R2063-R2101, R2120-R2159, R2180-R2209, R2240-R2269, V8219-V9233, V8246-V8289, V8307-V8356, V8370-V8385 (total 268 a/c). *Note:* R2152 and R2269 converted to Mk.IC.
Fairey-built. T4623-T4647 (25 a/c).
Weston-built. X7540-X7589, X7610-X7649, X7670-X7719, X7740-X7849, X7870-X7879 (total 260 a/c).

Mk. IC. *Filton-built.* T3228-T3272, T3290-T3333, T3348-T3355 (total 97 a/c). *Note:* T3251-T3269 (19 a/c) to Australia for R.A.A.F. under A-19 designation.
Fairey-built. Aircraft offset from production for Royal Australian Air Force are indicated by their renumbering in R.A.A.F.'s A19 series. T4648-T4670, T4700-T4734, T4751-T4800, T4823-T4846, T4862-T4899, T4915-T4919, T4920-T4931 became A19-1 to A19-12; T4932-T4942, T4943-T4947 became A19-13 to A19-17; T4970-T4978 became A19-18 to A19-26; T4979-T4990, T4991-T5004 became A19-41 to A19-49; T5070-T5074 became A19-50 to A19-54; T5076 became A19-55; T5077 became A19-61; T5078-T5080, T5081 became A19-56; T5082 became A19-64; T5083 and T5084 became A19-57 and A19-58; T5085, T5086 became A19-71; T5087 and T5088, T5089 became A19-62; T5090 became A19-59; T5091 became A19-60; T5092 became A19-72; T5093 became A19-66; T5094 became A19-65; T5095 became A19-67; T5096, T5097 became A19-68; T5098 became A19-70; T5099 became A19-69 (total 300 a/c, including 57 for R.A.A.F.).

Mk. II. *Filton-built.* Prototypes R2058, R2061, R2062 (3 a/c).

Mk. IIF. *Filton-built.* R2270-R2284, R2300-R2349, R2370-R2404, R2430-R2479, T3009-T3055, T3070-T3107, T3137-T3183, T3210-T3227, T3356-T3389, T3410-T3447 (total 447 a/c). *Note:* R2274, R2306 delivered as Mk.V.

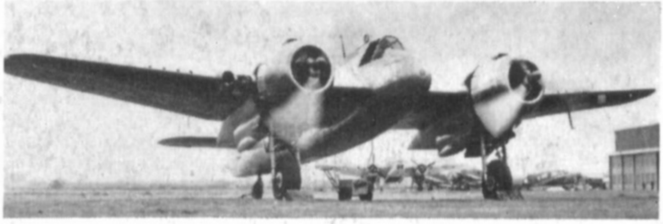
Total Quantities (Summary)

Mark IF	268	Filton (including 2 converted to Mk.IC) + 25 Faireys + 260 Weston + 4 prototypes	557
Mark IC	97	Filton + 300 Fairey	397
Mark IIF	447	Filton (including 2 converted to Mk. V) + 3 prototypes	450
		Total	1,404

SPECIFICATION

Type: Two-seat long range day and night fighter.

Wings: Mid-wing cantilever all-metal monoplane. In three sections. Centre-section bolted to fuselage, outer sections set at 5 degrees dihedral. Structure consists of two spars having single sheet webs and extruding flanges, former ribs and stressed-skin covering. Split hydraulically-operated flaps between fuselage and ailerons. Metal framed ailerons with fabric covering.



Fuselage: All-metal monocoque in three sections. Structure of 'Z'-section frames and 'L'-section stringers, the whole covered with metal skin.

Tail Unit: Cantilever monoplane type. Tailplane and fin were separate structures with flush-riveted metal skin, except that tips of tailplane were of wood. Rudder and elevators had metal frames and fabric covering. Controllable trim-tabs in elevators and rudder.

Undercarriage: Retractable type. Each independent unit was hydraulically-raised backwards into engine nacelle and hinged doors closed the aperture. Wheels carried between two oleo-pneumatic shock-absorber legs and had pneumatically-operated brakes. Tailwheel retracted forwards into fuselage.

Powerplant: (Mk. I) Two 1,400 h.p. Bristol Hercules XI fourteen-cylinder sleeve-valve radial air-cooled engines with two-speed superchargers. Three-bladed Rotol constant-speed fully-feathering airscrews with metal blades. (Mk. II) Two 1,250 h.p. Rolls-Royce Merlin XX twelve-cylinder Vee liquid-cooled engines with two-speed superchargers. Three-bladed Rotol constant-speed airscrews with Schwartz wooden blades. Fuel carried in four self-sealing tanks, two (188 Imp. gallons each) in centre-section and one (87 Imp. gallons) in each outer wing-section. Separate oil tank (18 Imp. gallons) for each engine in centre-section with oil cooler in outer section. Electric starters and hand-turning gear.

Accommodation: Crew of two with pilot in nose and observer aft of wing. Access to crew positions through hatches in underside of fuselage. These hatches also intended for special emergency exit (for details see main text). A knock-out panel on starboard side of pilot, a hinged window above pilot and a hinged hood above observer provided further emergency exits.

Armament: Four 20 mm. Hispano cannon in fuselage nose with a combined rate of fire of 2,400 rounds per minute and a total weight of fire of 600 lb. per minute; and six 0·303-in. Browning machine-guns in wings, each firing at rate of about 1,200 rounds per minute, giving a combined rate of fire of 7,200 rounds per minute and a total weight of fire of 180 lb. per minute. Total combined fire-power (cannon and machine-guns) 780 lb. per minute.

Dimensions: Span 57 ft. 10 in. Length (Mk. I) 41 ft. 4 in. (Mk. II) 42 ft. 9 in. Height 15 ft. 10 in. Wing area 503 sq. ft.

Weights: Empty 13,800 lb. All-up 21,000 lb.

Performance: Mk. I (Mk. IIF with A.I. Mk. IV, RDM2 soot-black finish, in brackets). Max. speed 321 m.p.h. at 15,800 ft. (301 m.p.h. at 20,200 ft. 283 m.p.h. at 15,000 ft.). Stalling speed 83 m.p.h. flaps and undercarriage down. Initial climb 1,960 ft. per minute at 2,000 ft. Climb to 10,000 ft. 5·8 min., to 20,000 ft. 14·1 min. Service ceiling 26,500 ft. Normal range 1,170 miles at 5,000 ft. at 182 m.p.h. (1,040 miles at 10,000 ft. at 177 m.p.h., 1,550 miles (overload fuel)). Endurance 8·5 hr. (5·9—8·8 hr.).

EXAMPLES OF BEAUFIGHTERS IN SQUADRON SERVICE

Mk. IF. No. 25 Sqdn. R2069 ZK-A (later ZK-H); No. 29 Sqdn. R2138 RO-L; No. 89 Sqdn. V8219; No. 219 Sqdn. R2204 FK-J; No. 252 Sqdn. R2153 PN-W; No. 600 Sqdn. R2065; No. 604 Sqdn. R2136 NG-N.

Mk. IC. No. 143 Sqdn. T3234; No. 236 Sqdn. T4800 ND-C; No. 248 Sqdn. T4639 WR-F; No. 252 Sqdn. T3309; No. 272 Sqdn. T3315 M.

Mk. IIF. No. 25 Sqdn. R2277; No. 125 Sqdn. V8135; No. 255 Sqdn. R2402 YD-G; No. 307 (City of Lwow) (Polish) Sqdn. R2459; No. 406 (Lynx) Sqdn. R.C.A.F. R2274; No. 456 Sqdn. R.A.A.F., T3370; No. 488 Sqdn. R.N.Z.A.F. T3373; No. 600 Sqdn. R2273; No. 604 Sqdn. R2270.

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